DENON®

Service Manual Ver. 2

INTEGRATED NETWORK AV RECEIVER

AVR-X1700H
AVR-S760H

Click here!

On-line service parts list

AVR-X1700H: https://dmedia.soundunited.com/documents/details/28727

AVR-S760H: https://dmedia.soundunited.com/documents/details/28728

ONLINE PARTS LIST (P5)

WEB owner's manual

NA: http://manuals.denon.com/AVRX1700H/NA/EN/index.php

EU: http://manuals.denon.com/AVRX1700H/EU/EN/index.php

AP: http://manuals.denon.com/AVRX1700H/AP/ZH/index.php

JP: http://manuals.denon.com/AVRX1700H/JP/JA/index.php

NA: http://manuals.denon.com/AVRS760H/NA/EN/index.php

EU: http://manuals.denon.com/AVRS760H/EU/EN/index.php

Upload is planned for the time of a future press release.

BEFORE SERVICING THIS UNIT

ELECTRICAL

MECHANICAL

REPAIR INFORMATION

UPDATING

- For purposes of improvement, specifications and design are subject to change without notice.
- Please use this service manual when referring to the operating instructions without fail.
- Some illustrations used in this service manual are slightly different from the actual product.

Please refer to the MODIFICATION NOTICE.

Confidential

BEFORE SERVICING THIS UNIT

SAFETY PRECAUTIONS

NOTE FOR SCHEMATIC DIAGRAM

HANDLING THE SEMICONDUCTOR AND OPTICS

ONLINE PARTS LIST

Accessing the Parts List
Searching Part Numbers or Ref. Numbers
NOTE FOR PARTS LIST

SERIAL NUMBER

Serial Number Organization
SKU Code of this Unit

POST-SERVICE PRECAUTIONS

Initializing this Unit AVR-X1700H
JIG FOR SERVICING
Initializing this Unit AVR-S760H
JIG FOR SERVICING

SAFETY PRECAUTIONS

The following items should be checked for continued protection of the customer and the service technician.

Leakage current check

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.
Be sure to test for leakage current with the AC plug in both polarities, in addition, when the set's power is in each state (on, off and standby mode), if applicable.

CAUTION **Please heed the following cautions and instructions during servicing and inspection.**

◎ Heed the cautions!

Cautions which are delicate in particular for servicing are labeled on the cabinets, the parts and the chassis, etc. Be sure to heed these cautions and the cautions described in the handling instructions.

◎ Cautions concerning electric shock!

(1) An AC voltage is impressed on this set, so if you touch internal metal parts when the set is energized, you may get an electric shock. Avoid getting an electric shock, by using an isolating transformer and wearing gloves when servicing while the set is energized, or by unplugging the power cord when replacing parts, for example.
(2) There are high voltage parts inside. Handle with extra care when the set is energized.

◎ Caution concerning disassembly and assembly!

Through great care is taken when parts were manufactured from sheet metal, there may be burrs on the edges of parts. The burrs could cause injury if fingers are moved across them in some rare cases. Wear gloves to protect your hands.

◎ Use only designated parts!

The set's parts have specific safety properties (fire resistance, voltage resistance, etc.). Be sure to use parts which have the same properties for replacement. The burrs have the same properties. In particular, for the important safety parts that are indicated by the ⚠ mark on schematic diagrams and parts lists, be sure to use the designated parts.

◎ Be sure to mount parts and arrange the wires as they were originally placed!

For safety seasons, some parts use tapes, tubes or other insulating materials, and some parts are mounted away from the surface of printed circuit boards. Care should also be taken with the positions of the wires by arranging them and using clamps to keep them away from heating and high voltage parts, so be sure to set everything back as it was originally placed.

◎ Make a safety check after servicing!

Check that all screws, parts and wires removed or disconnected when servicing have been put back in their original positions, check that no serviced parts have deteriorated the area around. Then make an insulation, check on the external metal connectors and between the blades of the power plug. And otherwise check that safety is ensured.
(Insulation check procedure)
Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and on the power. Using a 500V insulation resistance tester, check that the insulation resistance value between the inplug and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is 1M Ω or greater. If it is less, the set must be inspected and repaired.

CAUTION **Concerning important safety parts**

Many of the electric and the structural parts used in the set have special safety properties. In most cases these properties are difficult to distinguish by sight, and the use of replacement parts with higher ratings (rated power and withstand voltage) does not necessarily guarantee that safety performance will be preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and the parts list in this service manual. Be sure to replace them with the parts which have the designated part number.

(1) Schematic diagrams Indicated by the ⚠ mark.
(2) Parts lists Indicated by the ⚠ mark.
The use of parts other than the designated parts could cause electric shocks, fires or other dangerous situations.

NOTE FOR SCHEMATIC DIAGRAM

WARNING:
Parts indicated by the ⚠ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

WARNING:
DO NOT return the set to the customer unless the problem is identified and remedied.

NOTICE:
(1) ALL RESISTANCE VALUES IN OHM. k=1,000 OHM / M=1,000,000 OHM
(2) ALL CAPACITANCE VALUES ARE EXPRESSED IN MICRO FARAD, UNLESS OTHERWISE INDICATED. P INDICATES MICRO-MICRO FARAD. N INDICATES NANO FARAD.
(3) EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
(4) CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

HANDLING THE SEMICONDUCTOR AND OPTICS

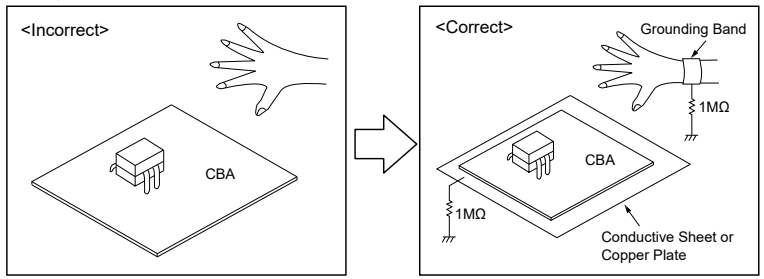
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band (1 M ohm) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 M ohm) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing

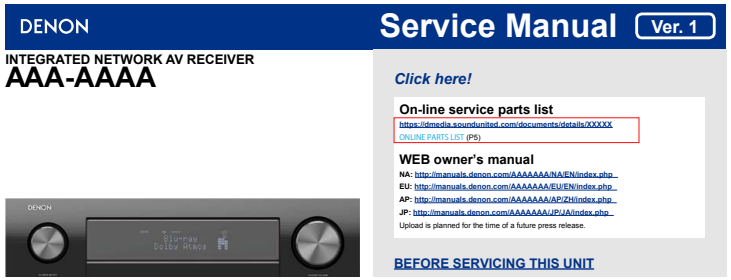


ONLINE PARTS LIST

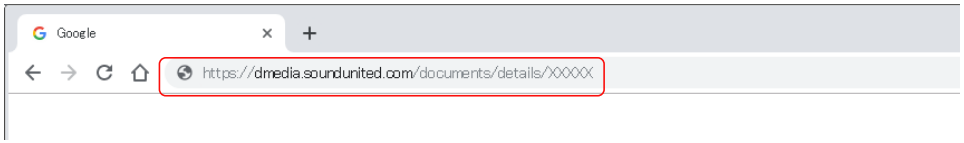
Accessing the Parts List

(1) Access from the Service Manual

- Click the URL link on the cover of the service manual.
  Examples of display

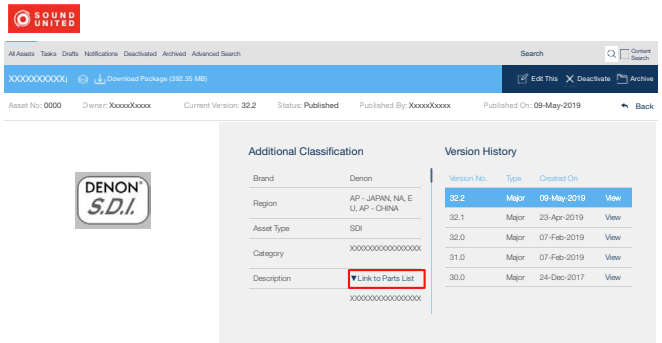


NOTE : If the web browser does not open automatically, copy the URL and paste it into the address bar of the web browser and then press Enter.



(2) Accessing the Part List from the Model Asset Screen.

- Display Model Asset from New SDI.
- Click the section displayed as ▼ Link to Part Lists under the model name.



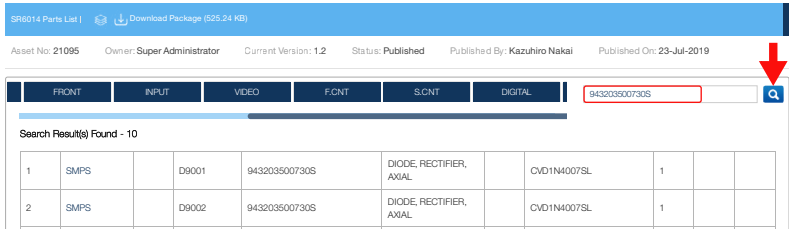
NOTE : If the ▼ Link to Parts List section is not displayed, download the parts table from the Asset list.

Searching Part Numbers or Ref. Numbers

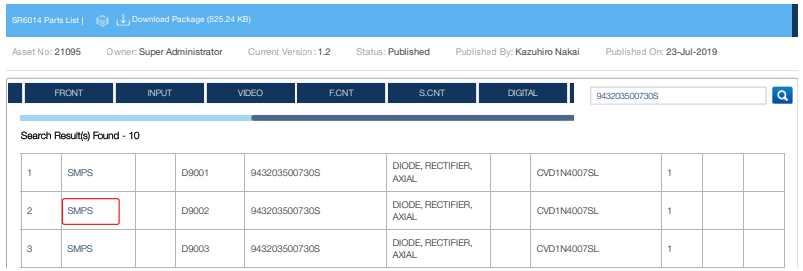
You can search a Parts List for part numbers or Ref. numbers.

(1) Enter the part number or Ref. number in the search window of the Parts List, and press the search button.

(2) The search results are displayed.
The name of the sheet in which the search part is used and the part's line are displayed.



(3) Next, click the "**Sheet**" section of the search results.



NOTE FOR PARTS LIST

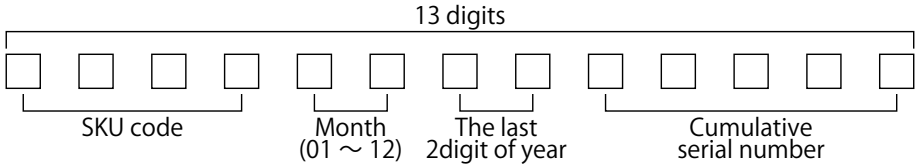
1. Parts indicated by "**nsp**" on this table cannot be supplied.
2. When ordering a part, make a clear distinction between "1" and "I" (i) to avoid mis-supplying.
3. A part ordered without specifying its part number can not be supplied.
4. Part indicated by "**@**" mark is not illustrated in the exploded and packaging view.

WARNING: Parts indicated by the ⚠ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

SERIAL NUMBER

Serial Number Organization

The 13-digit serial number that contains the code of the manufacturing date.



SKU Code of this Unit

SKU Code	NAV Number	Product Name	Description
DBNR	300390-01-00-101	AVRX1700HBKE3	
DBNS	300390-01-00-201	AVRX1700HBKE2	
DBNW	300391-01-00-201	AVRX1700HDABBKE2	
DBNV	300390-01-00-206	AVRX1700HBKE1C	
DBNT	300390-01-00-102	AVRX1700HK	
DBNX	300392-01-00-101	AVRS760HBKE3	
DBNY	300392-01-00-201	AVRS760HBKE2	

POST-SERVICE PRECAUTIONS

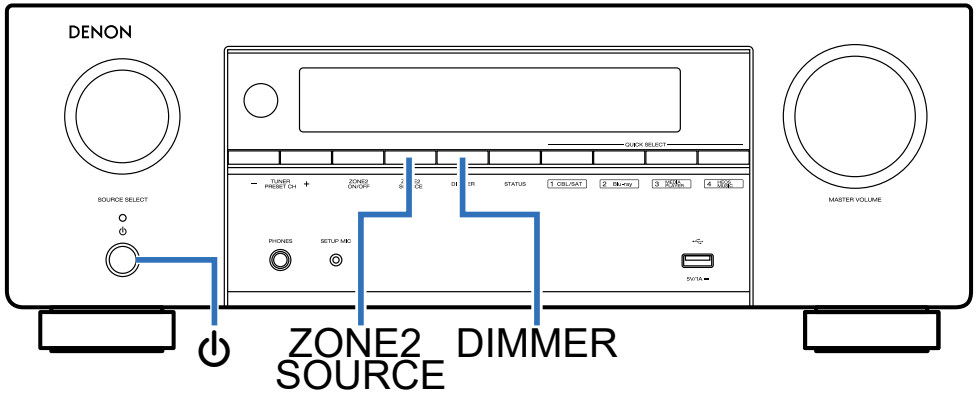
Initializing this Unit AVR-X1700H

Make sure to initialize this unit after replacing the microcomputer or any peripheral equipment, or the digital PCB.

1. Press the power button to turn off the power.
2. While holding down buttons "**ZONE2 SOURCE**" and "**DIMMER**" simultaneously, press the power button to turn on the power.
3. Release the buttons after confirming that the display flashes at 1-second intervals.
   ∗ The unit is initialized.
   Use network initialization mode to initialize the network related settings.

NOTE :
- If the unit fails to enter the service mode in step 3, repeat the procedure from step 1.
- Initializing the device restores the customized settings to the factory settings. Write down your settings in advance and reconfigure the settings after initialization.

AVR-X1700H



JIG FOR SERVICING

Use the following jigs (extension cable kit) when repairing the PCBs.
Order with your dealer for the jigs your dealer if necessary.

8U-110084S : EXTENSION UNIT KIT : 1 Set
(See JIG FOR SERVICING)

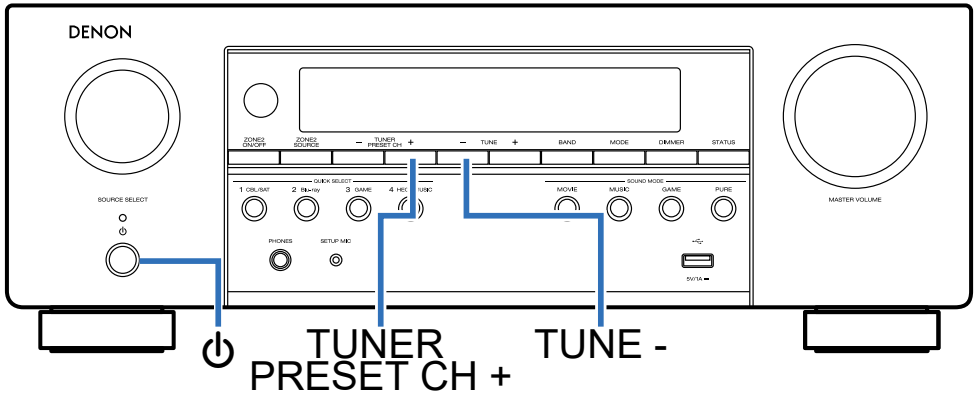
Initializing this Unit AVR-S760H

Make sure to initialize this unit after replacing the microcomputer or any peripheral equipment, or the digital PCB.

1. Press the power button to turn off the power.
2. While holding down buttons "**TUNER PRESET CH +**" and "**TUNE -**" simultaneously, press the power button to turn on the power.
3. Release the buttons after confirming that the display flashes at 1-second intervals.
   ∗ The unit is initialized.
   Use network initialization mode to initialize the network related settings.

NOTE :
- If the unit fails to enter the service mode in step 3, repeat the procedure from step 1.
- Initializing the device restores the customized settings to the factory settings. Write down your settings in advance and reconfigure the settings after initialization.

AVR-S760H



JIG FOR SERVICING

Use the following jigs (extension cable kit) when repairing the PCBs.
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8U-110084S : EXTENSION UNIT KIT : 1 Set
(See JIG FOR SERVICING)

ELECTRICAL

SCHEMATIC DIAGRAMS

SCH01 DIGI HDMI RX
SCH02 DIGI HDMI TX
SCH03 DIGI OSD
SCH04 DIG DIGITAL SUPPLY
SCH05 DIG MCU
SCH06 DIGI MCU LEVEL CHG
SCH07 DIGI DIR
SCH08 DIGI PLD
SCH09 DIGI DSP
SCH10 DIGI MAIN DAC
SCH11 DIGI NETWORK
SCH12 DIGI ANALOG
SCH13-1 MAIN for E3,E1C,S760 model
SCH13-2 MAIN for E2, JP model
SCH14 DIFF-AMP
SCH15-1 PHONO, TUNER(Except DABE2)
SCH15-2 PHONO, TUNER(Only DABE2)
SCH16 DAB (Only DABE2)
SCH17 FRONT
SCH18 REGULATOR
SCH19 SMPS

PRINTED CIRCUIT BOARDS

DIGITAL, TUNER Except DABE2, DAB Only DABE2, PHONO Except DABE2, PHONO Only DABE2
MAIN for E3, E1C, S760 model
MAIN for E2, JP model
DIFF-AMP, BIAS-TR, FRONT CABLE GUIDE, HDMI CABLE GUIDE, SMPS, REGULATOR
FRONT, PHONE, USB WIRE GUIDE, STANDBY, MIC, USB

LEVEL DIAGRAM

FRONT ch
CENTER, SURROUND, SURROUND BACK ch
SUBWOOFER ch
ZONE2 (W/O Source) ch
ZONE2 (W/Source) ch

BLOCK DIAGRAM

ANALOG AUDIO DIAGRAM
DIGITAL AUDIO DIAGRAM
VIDEO DIAGRAM

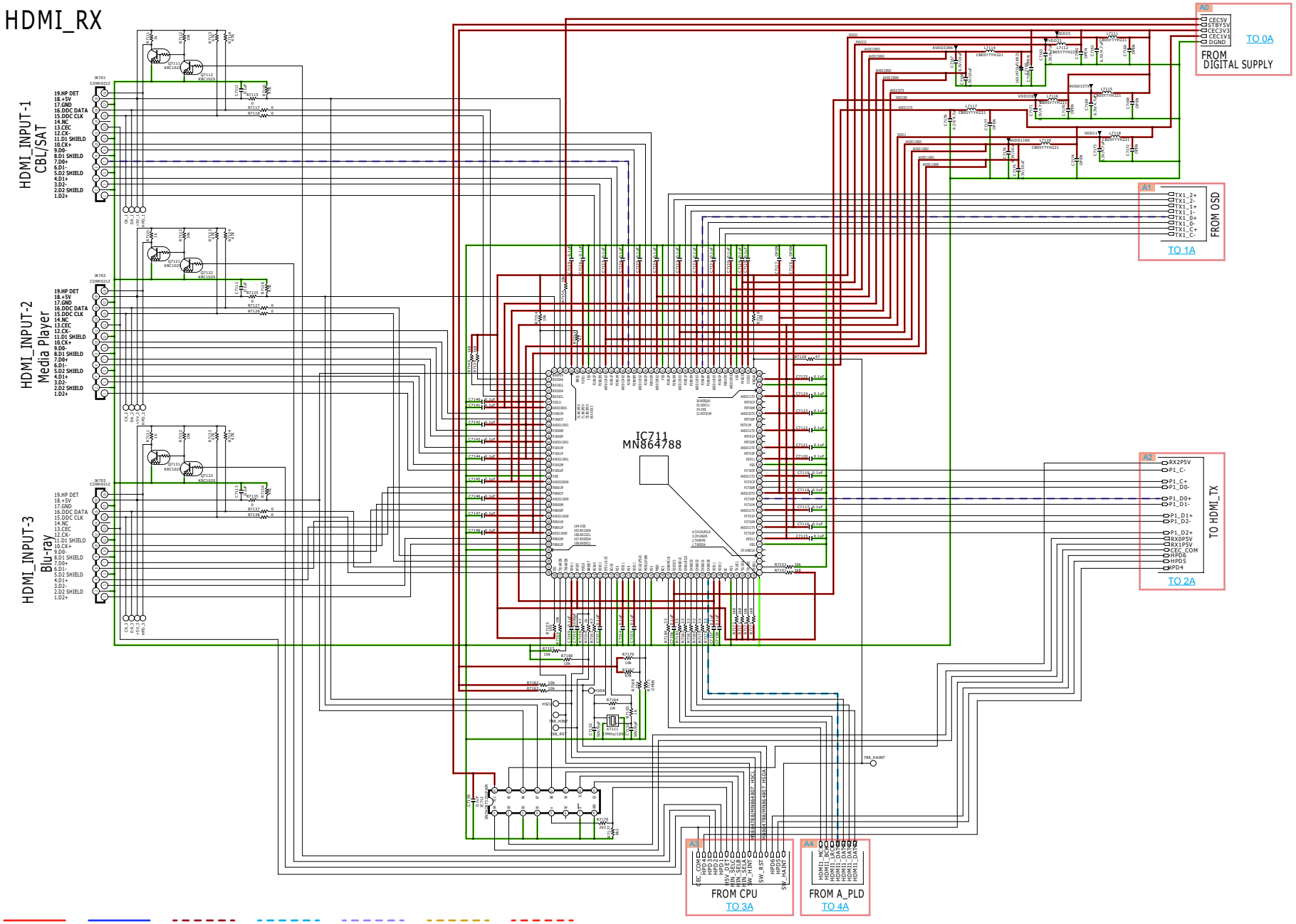
POWER DIAGRAM

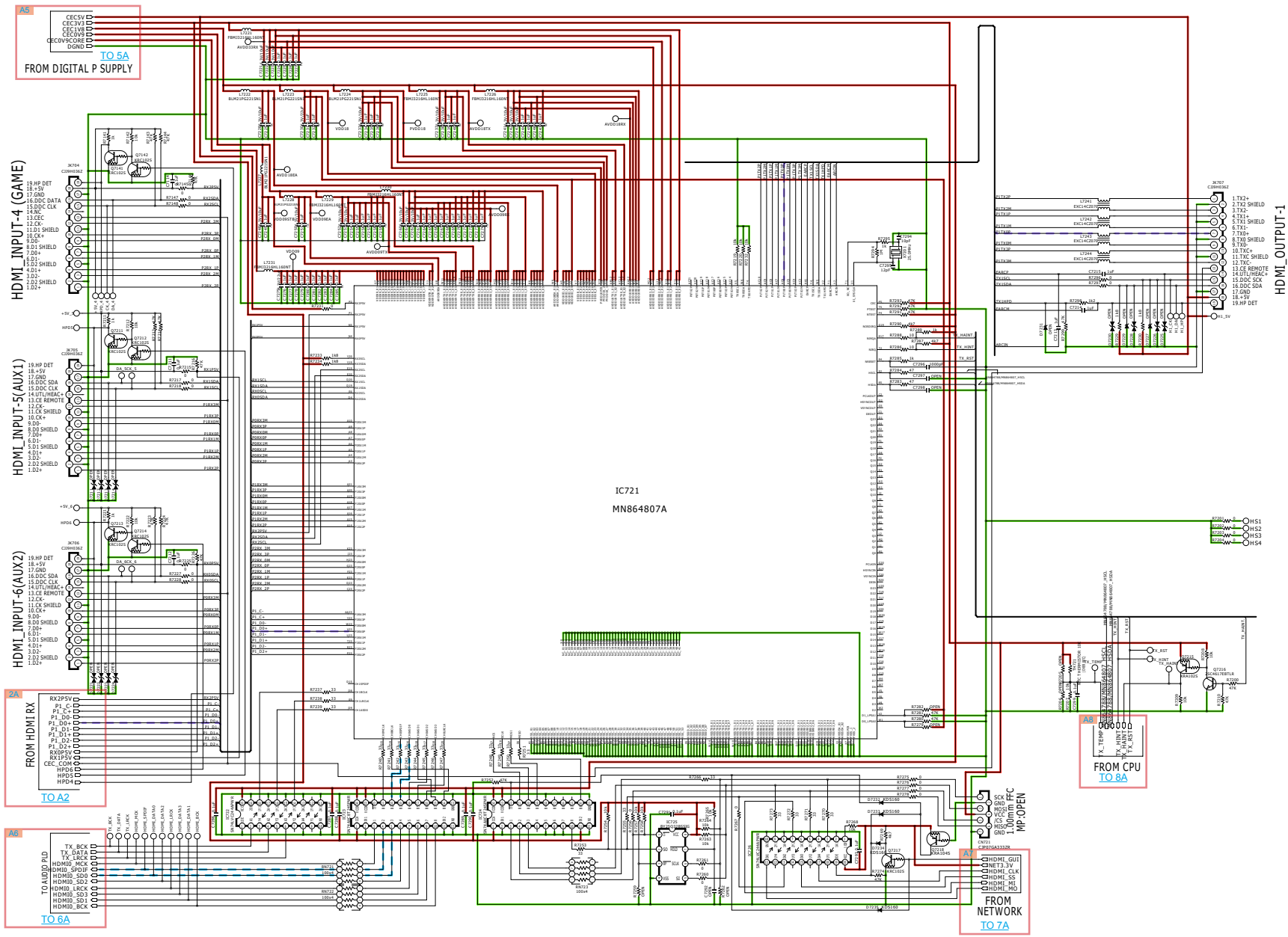
WIRING DIAGRAM

SEMICONDUCTORS

1. IC's
2. FL DISPLAY
3. Remote Code Table

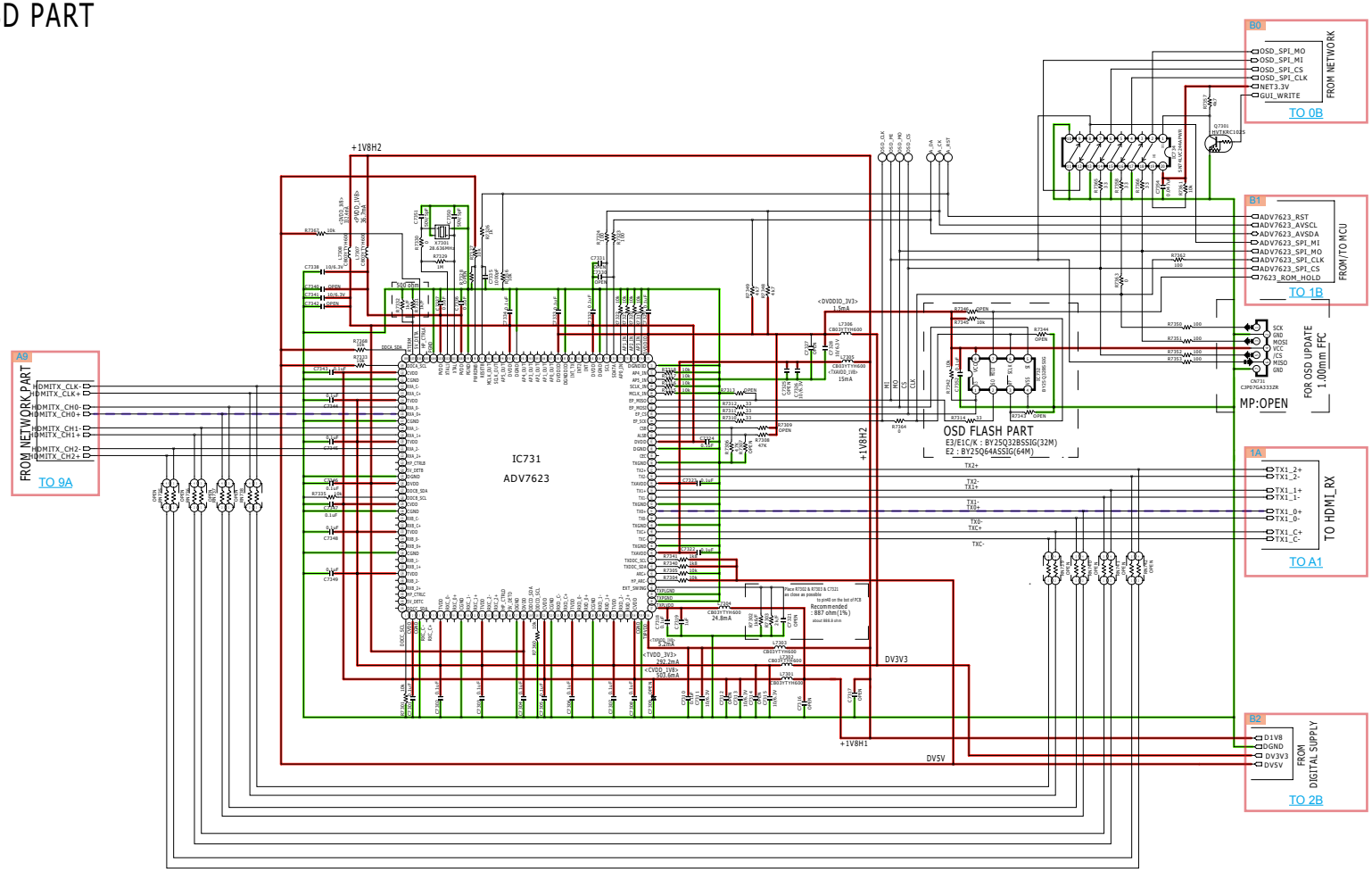
SCH01 DIGI HDMI RX



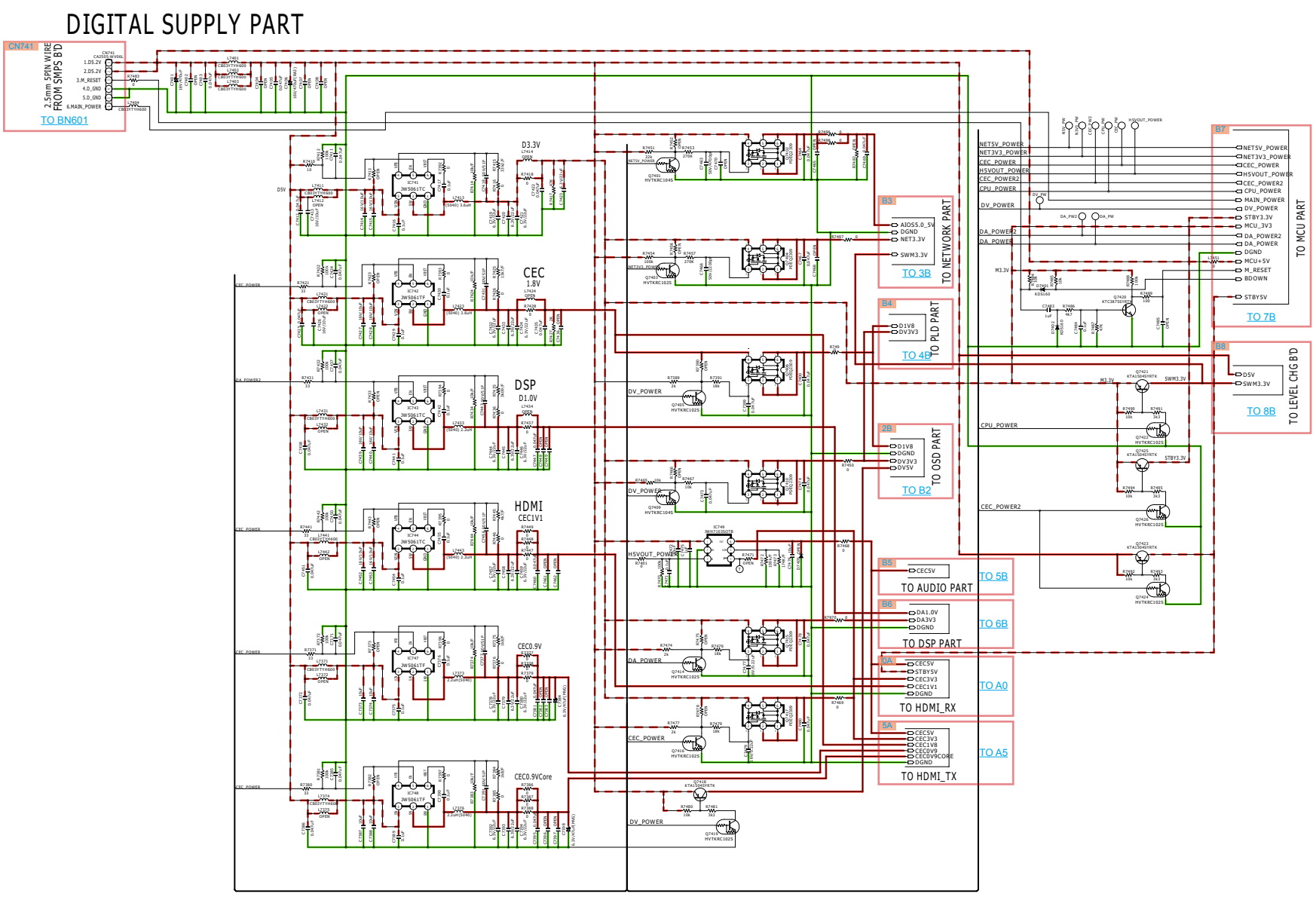


GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | STBY POWER

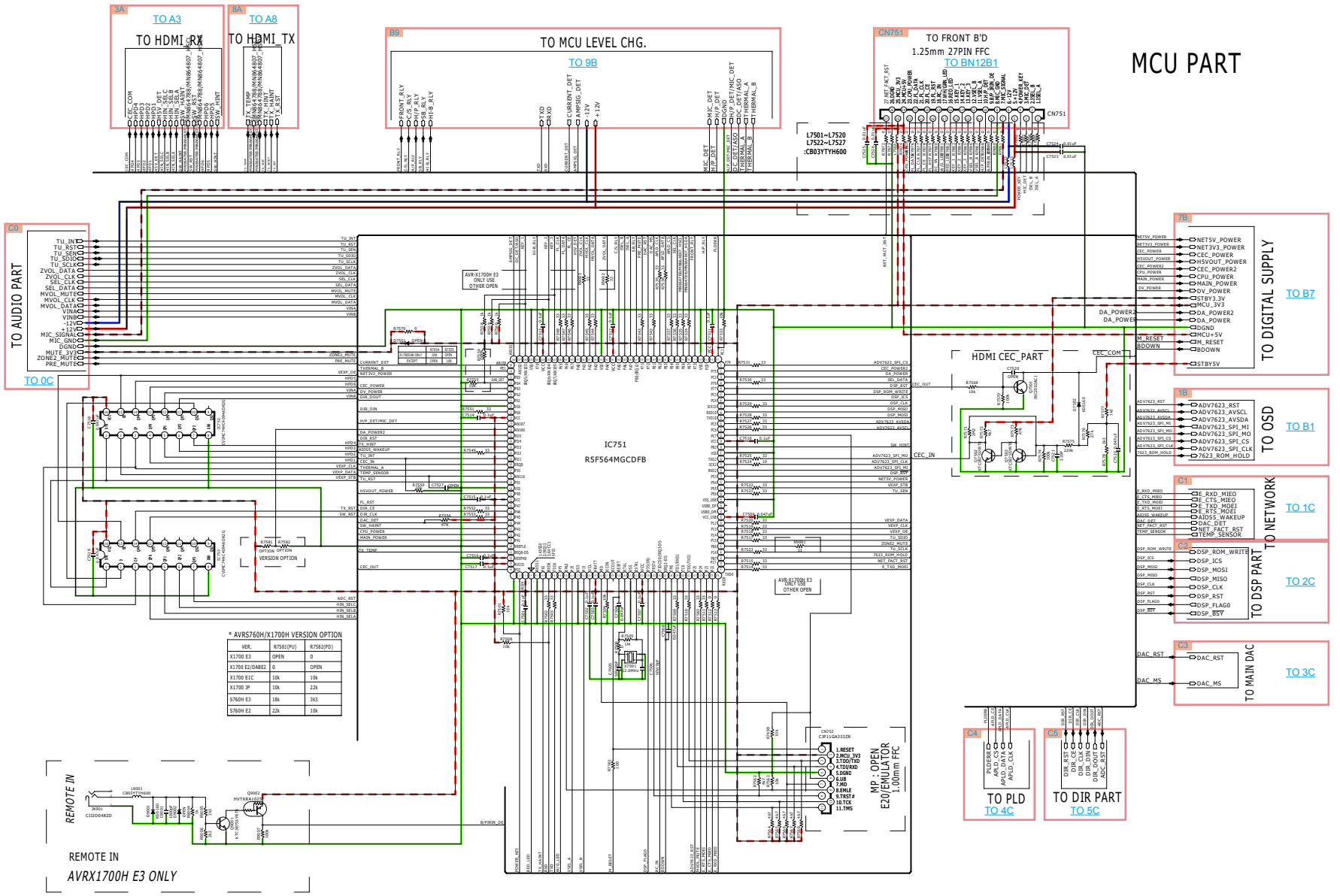
OSD PART



GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | STBY POWER


DIGITAL SUPPLY PART
CN741
2.5mm 5PIN WIRE FROM SMPS B'D
TO BN601
D3.3V
CEC 1.8V
DSP D1.0V
HDMI CEC1V1
CEC0.9V
CEC0.9VCore
TO NETWORK PART
TO 3B
TO PLD PART
TO 4B
TO OSD PART
TO B2
TO AUDIO PART
TO 5B
TO DSP PART
TO 6B
TO HDMI_RX
TO A0
TO HDMI_TX
TO A5
TO MCU PART
TO 7B
TO LEVEL CHG B'D
TO 8B
GND LINE
POWER+ LINE
POWER- LINE
ANALOG AUDIO
DIGITAL AUDIO
TMDS SIGNAL
ANALOG VIDEO
STBY POWER

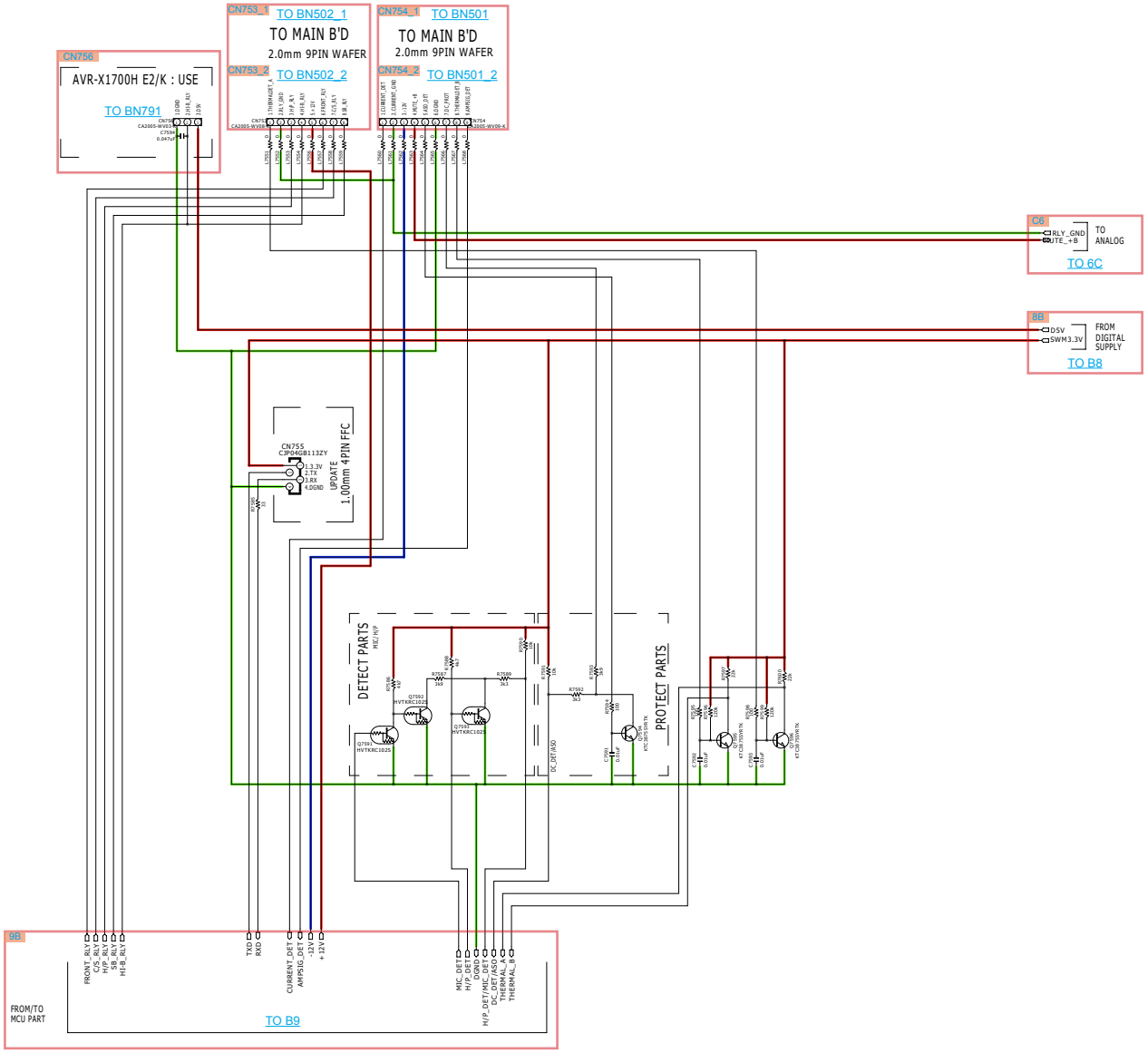
SCH05 DIG MCU



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

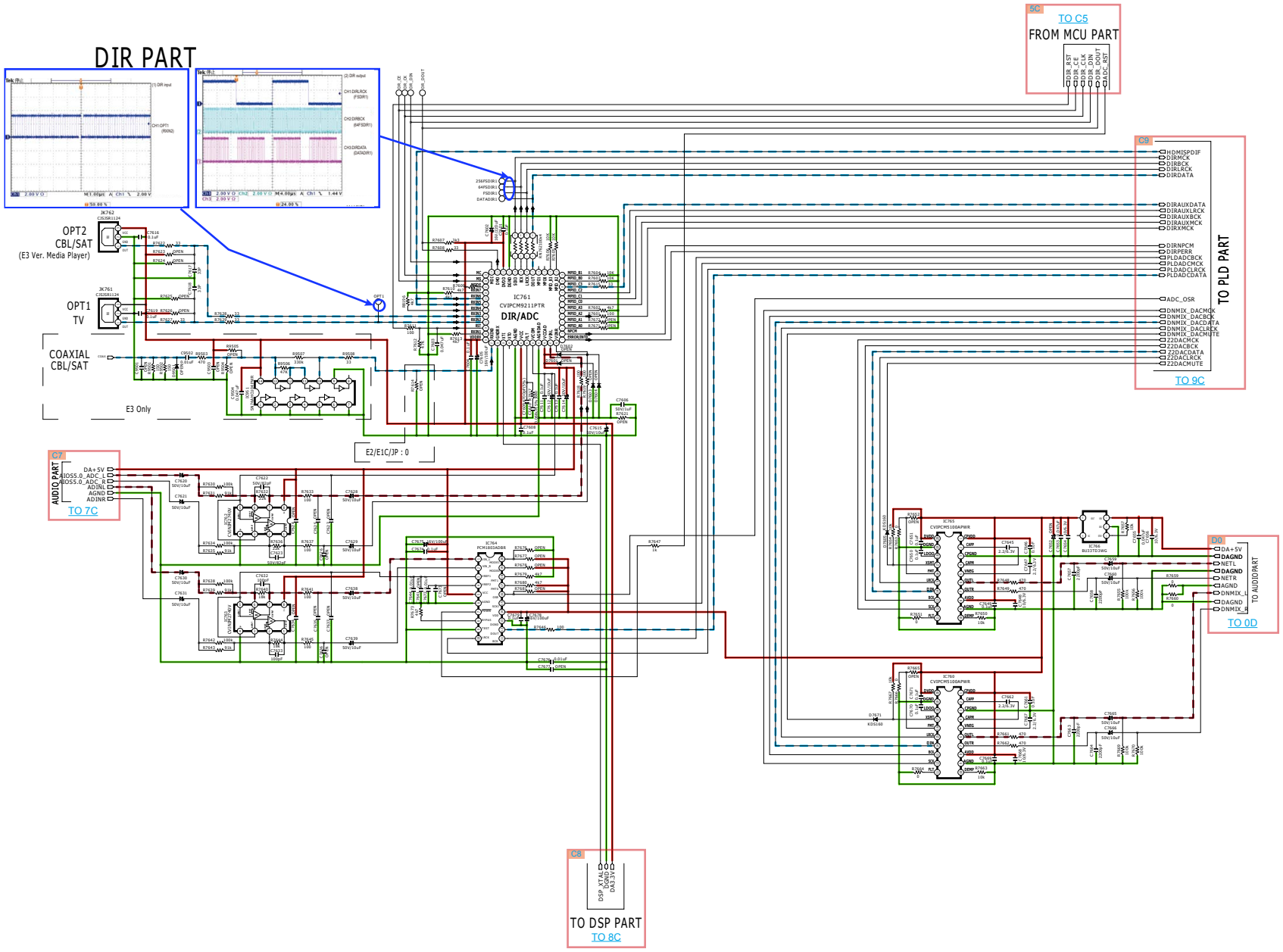
SCH06 DIGI MCU LEVEL CHG

MCU_LEVEL_CHG PART

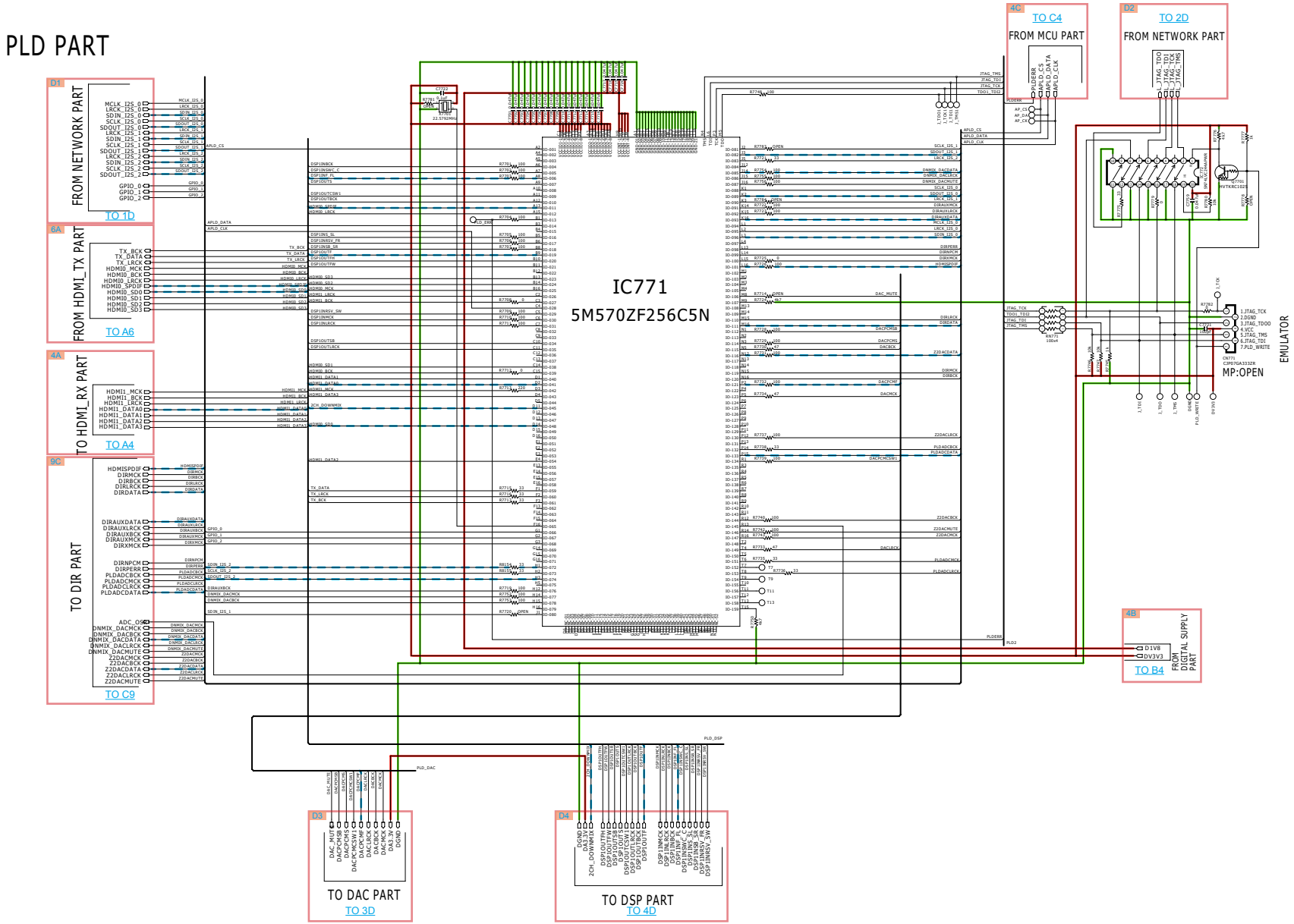


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

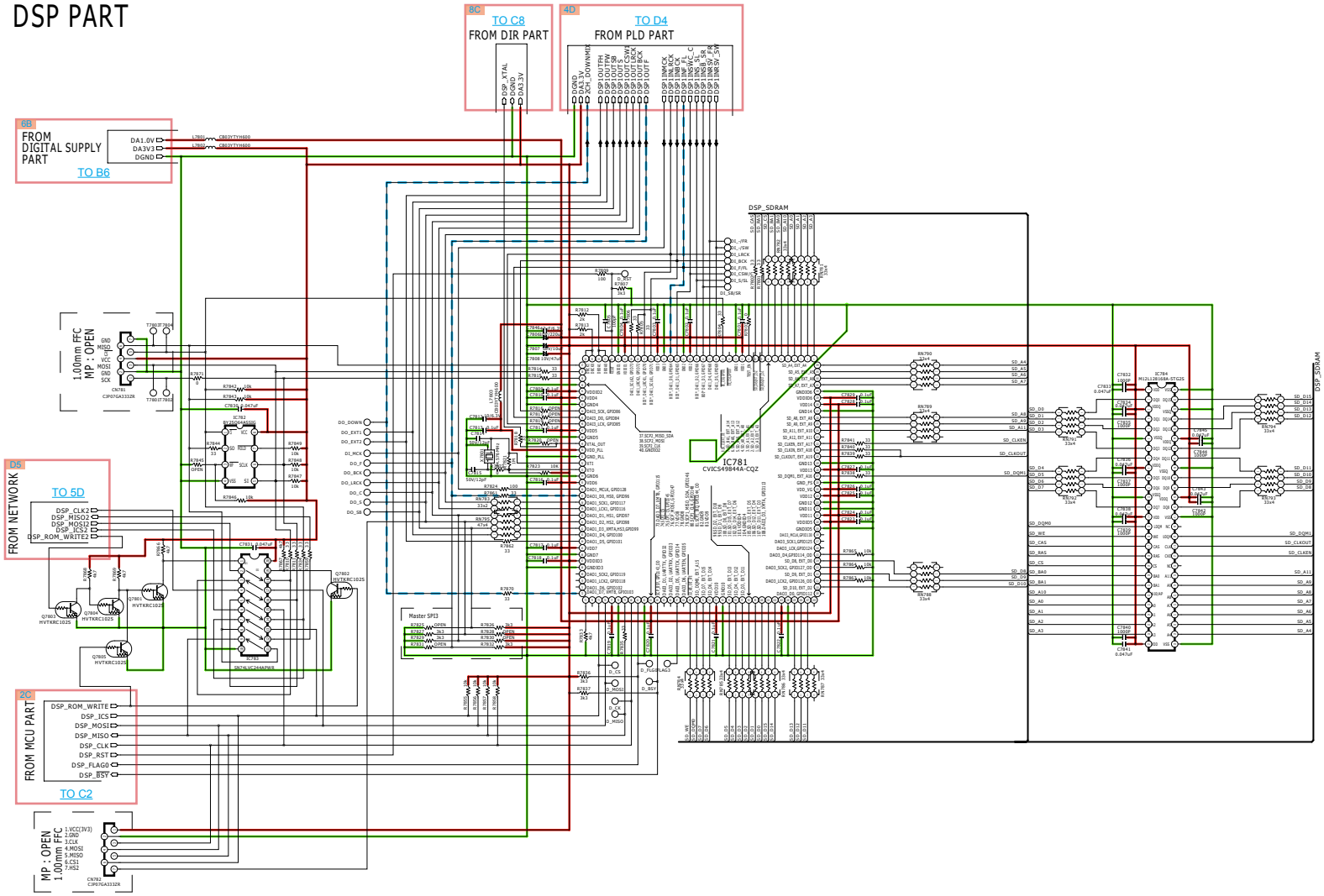
SCH07 DIGI DIR



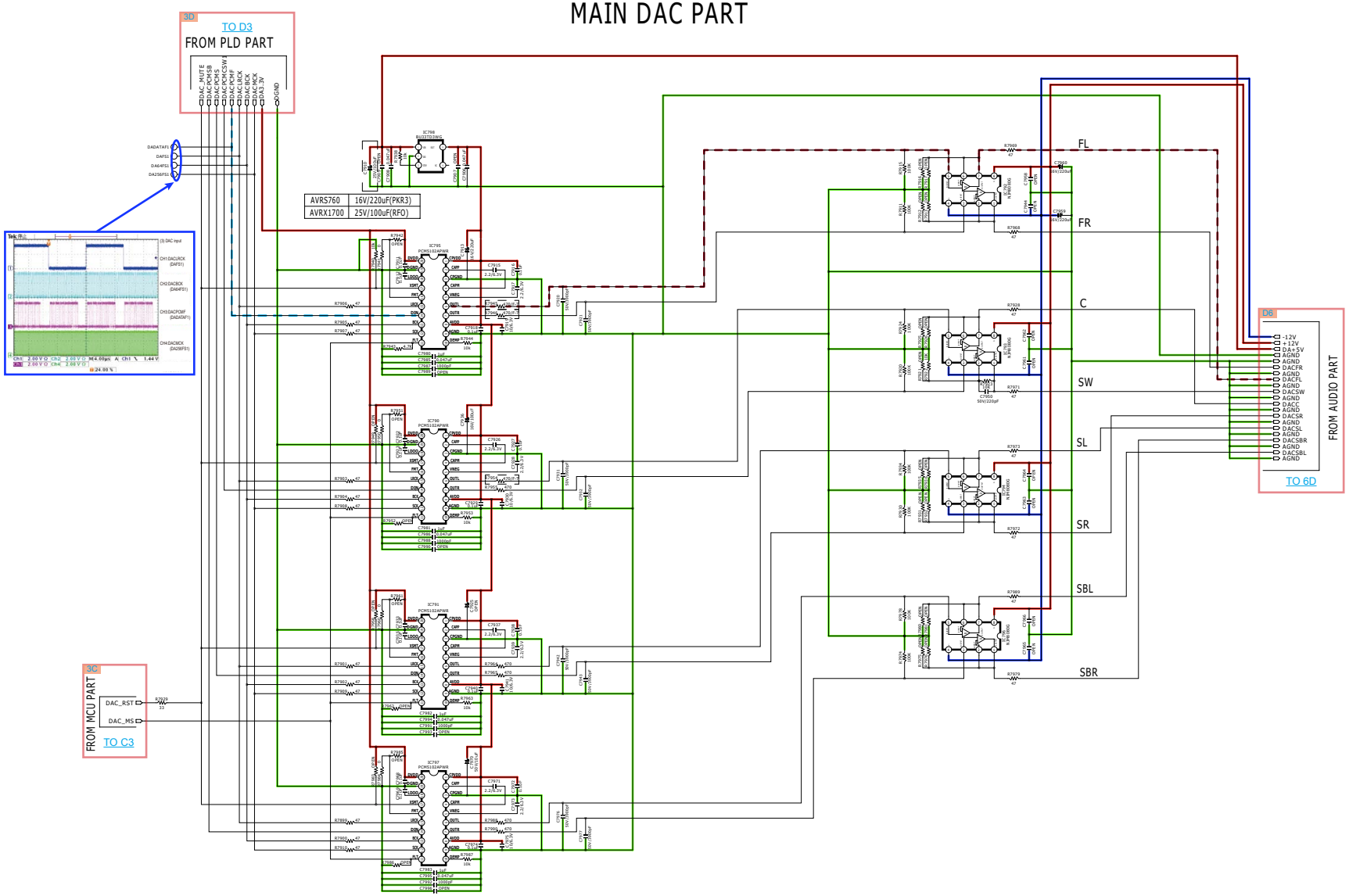
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | STBY POWER



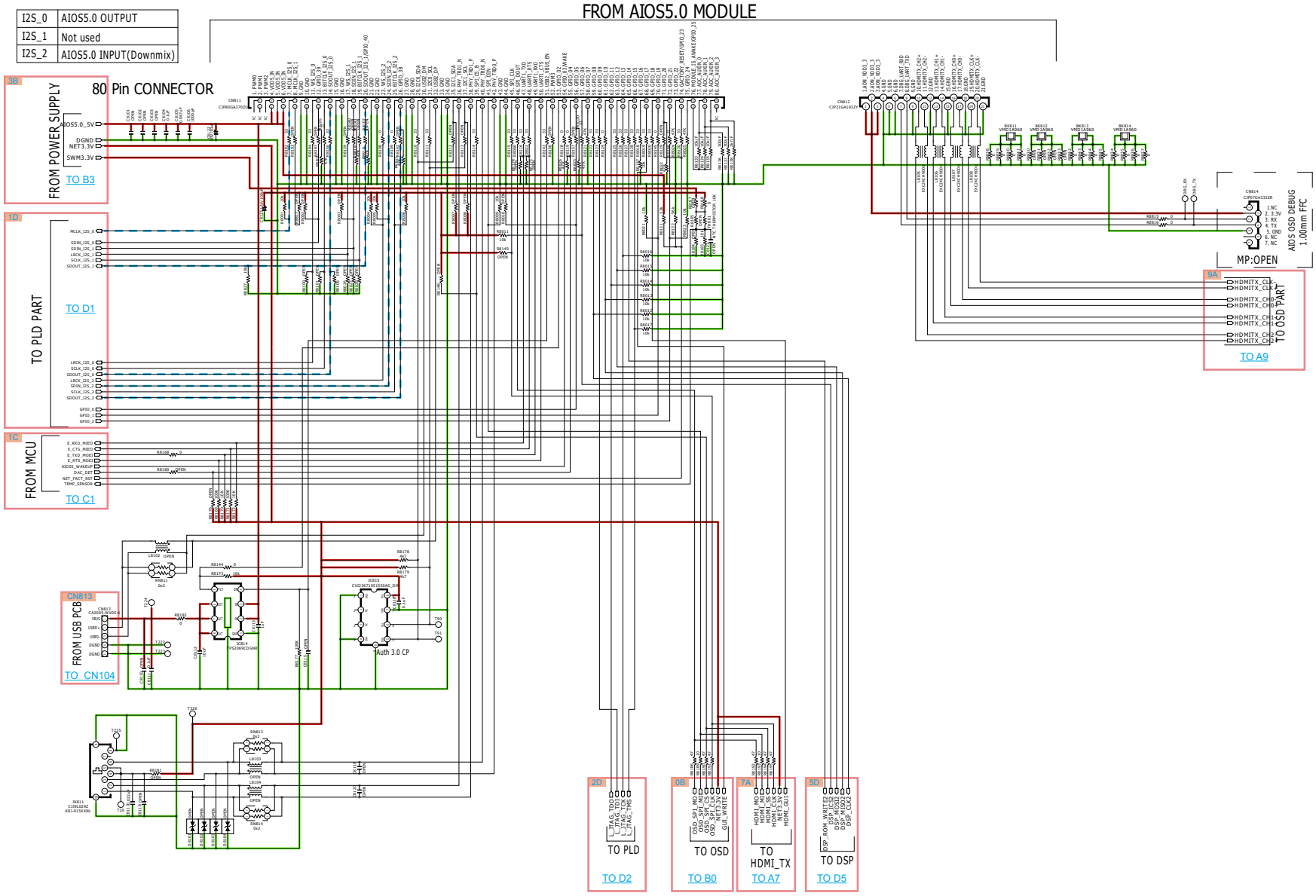
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | STBY POWER

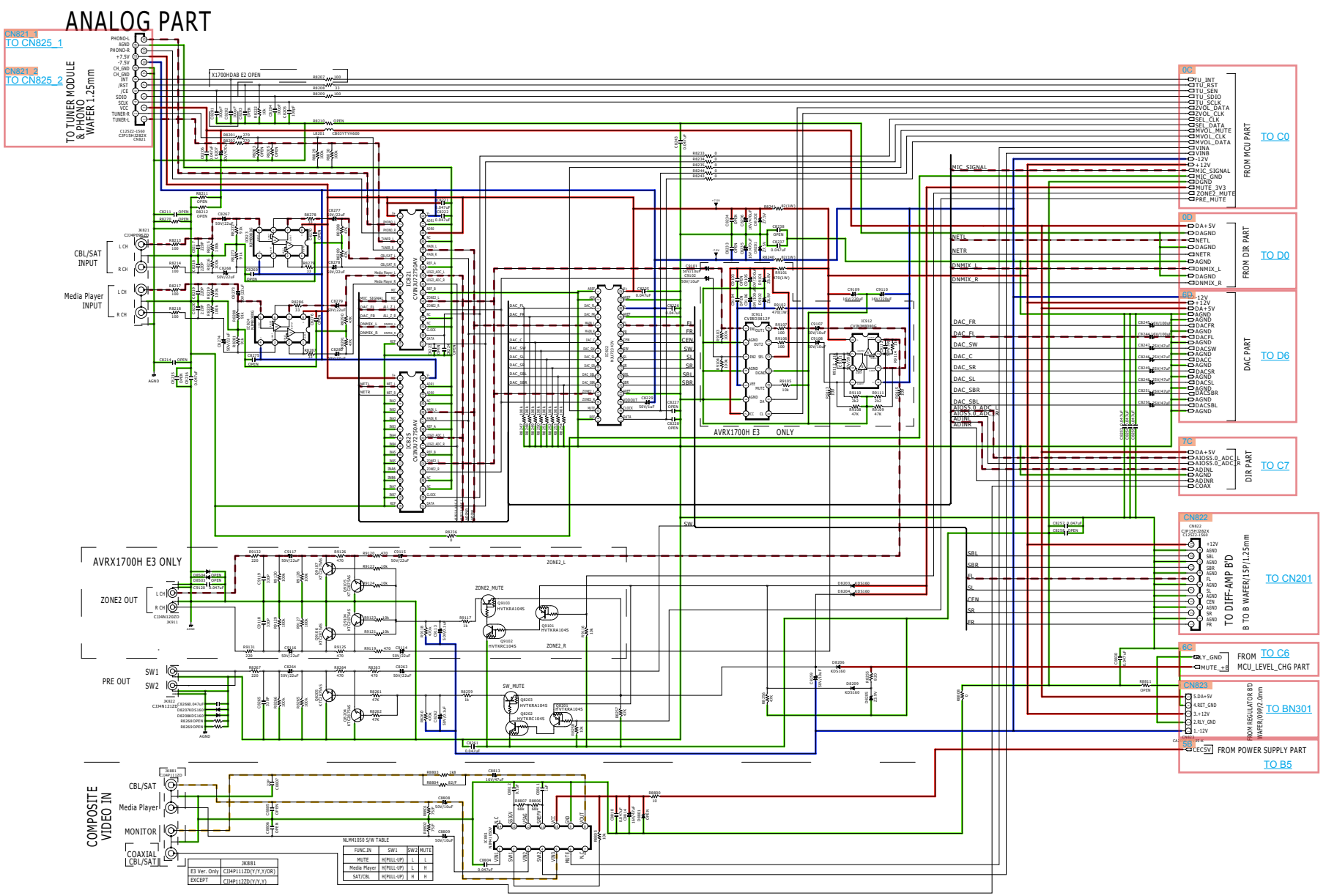


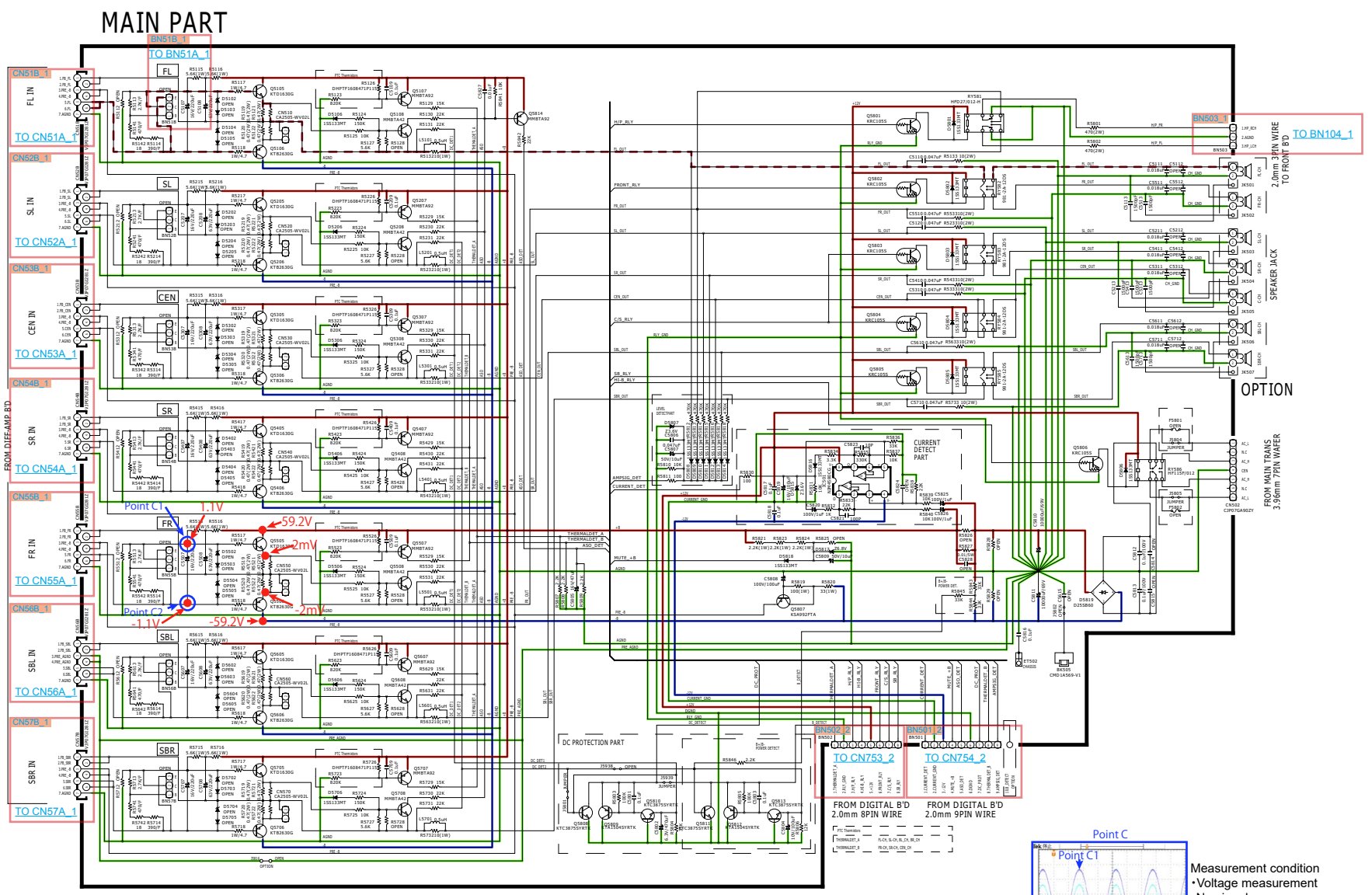
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | STBY POWER

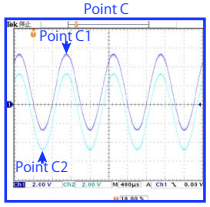

MAIN DAC PART
3D
TO D3
FROM PLD PART
AVRS760 16V/220uF(PKR3)
AVRX1700 25V/100uF(RFO)
FL
FR
C
SW
SL
SR
SBL
SBR
D8
FROM AUDIO PART
TO 6D
3C
FROM MCU PART
DAC_RST
DAC_MS
TO C3
GND LINE
POWER+ LINE
POWER- LINE
ANALOG AUDIO
DIGITAL AUDIO
TMDS SIGNAL
ANALOG VIDEO
STBY POWER

SCH11 DIGI NETWORK



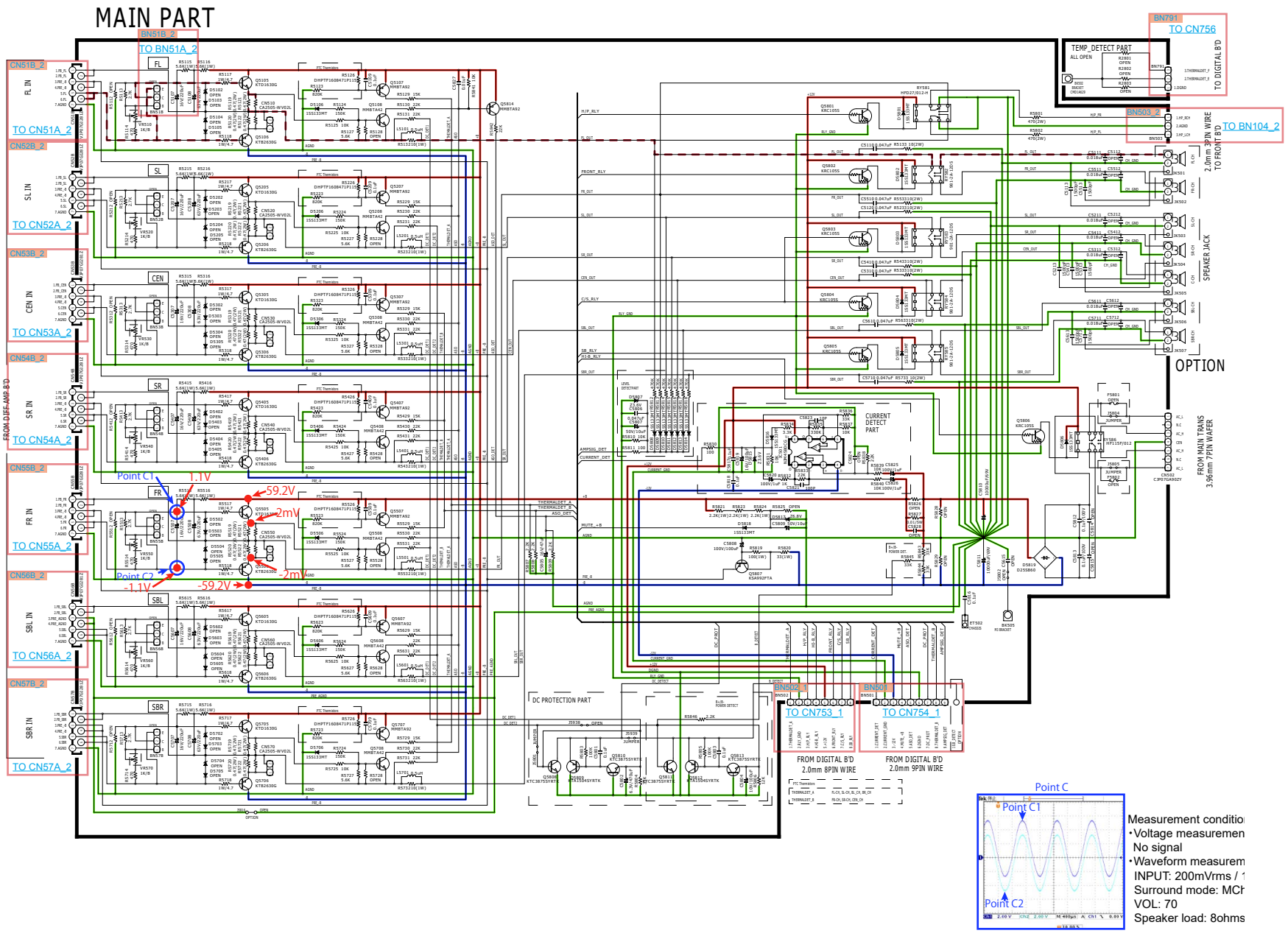

ANALOG PART
CN821_1
TO CN825_1
CN821_2
TO CN825_2
TO TUNER MODULE & PHONO WAFER 1.25mm
CBL/SAT INPUT
Media Player INPUT
AVRX1700H E3 ONLY
ZONE2 OUT
PRE OUT
SW1
SW2
COMPOSITE VIDEO IN
CBL/SAT
Media Player
MONITOR
COAXIAL CBL/SAT
0C
TO C0
FROM MCU PART
0D
TO D0
FROM DIR PART
6D
TO D6
DAC PART
7C
TO C7
DIR PART
CN822
TO CN201
TO DIFF-AMP B'D
B TO B WAFER/15P/1.25mm
6C
FROM MCU_LEVEL_CHG PART
CN823
TO BN301
FROM REGULATOR B'D
WAFER/09P/2.0mm
5B
FROM POWER SUPPLY PART
TO B5
AVRX1700H E3 ONLY
X1700HDAB E2 OPEN
NLM41050 S/W TABLE
JK881
GND LINE
POWER+ LINE
POWER- LINE
ANALOG AUDIO
DIGITAL AUDIO
TMDS SIGNAL
ANALOG VIDEO
STBY POWER





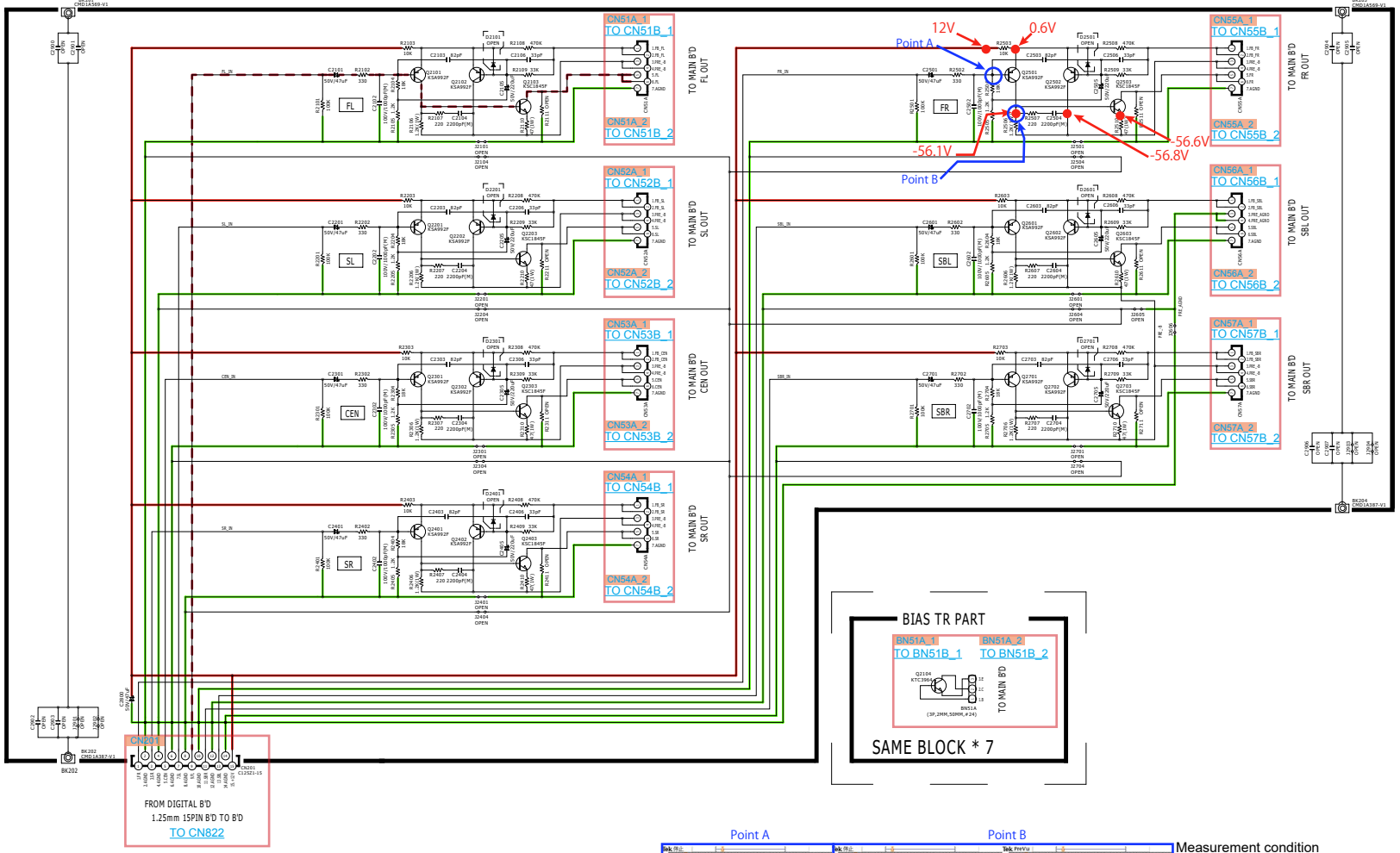
Measurement condition
- Voltage measurement
  No signal
- Waveform measurement
  INPUT: 200mVrms / 1KHz (ANALOG)
  Surround mode: MCh Stereo
  VOL: 70
  Speaker load: 8ohms

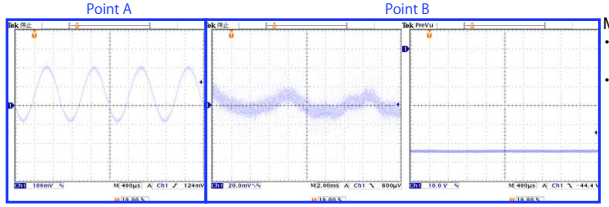
GND LINE | POWER+ LINE | POWER- LINE | ANALOG AUDIO | DIGITAL AUDIO | TMDS SIGNAL | ANALOG VIDEO | STBY POWER



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

AVR-S760H/X1700H DIFF-AMP PART

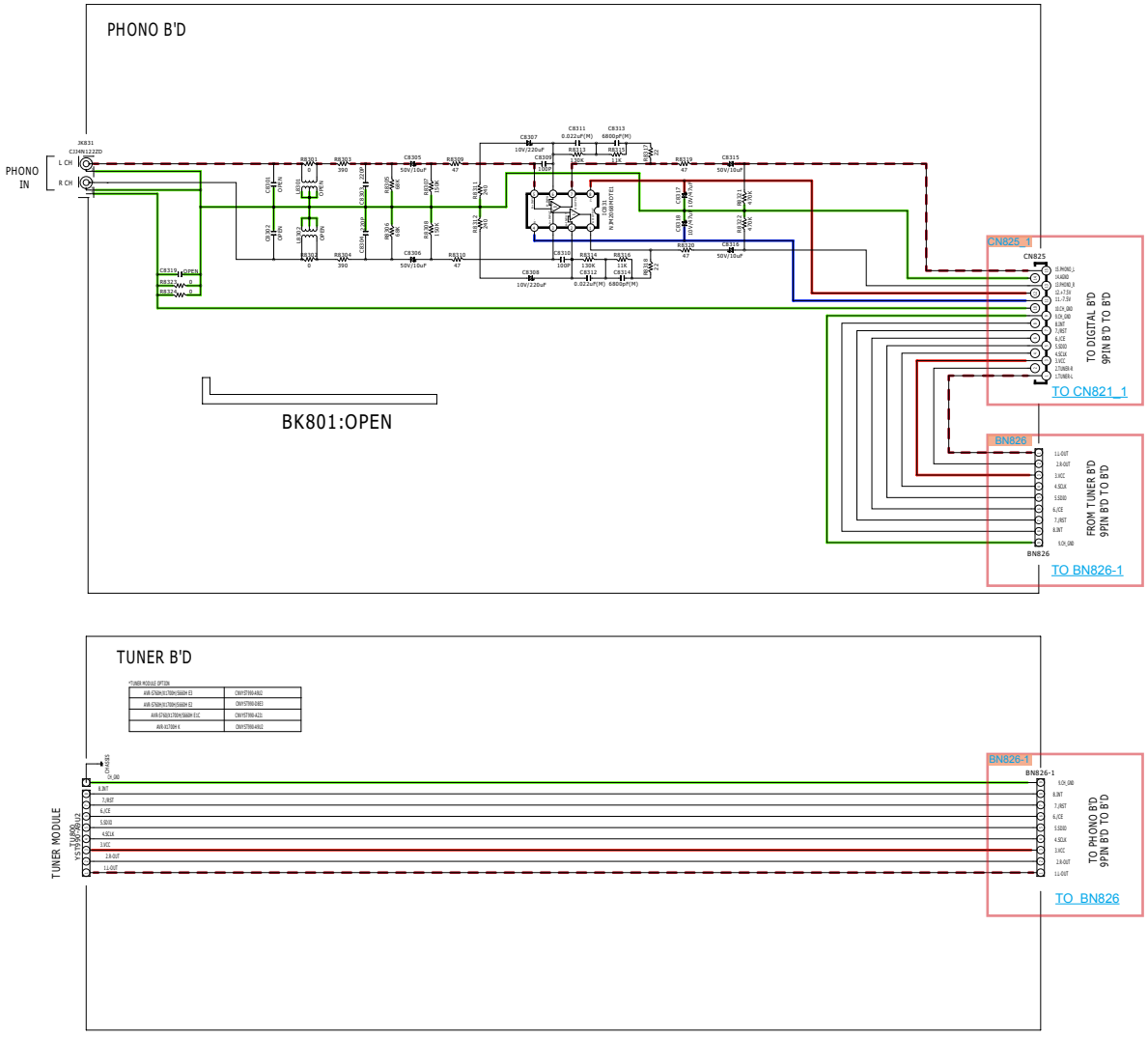




Measurement condition
- Voltage measurement
  No signal
- Waveform measurement
  INPUT: 200mVrms / 1KHz (ANALO
  Surround mode: MCh Stereo
  VOL: 70
  Speaker load: 8ohms

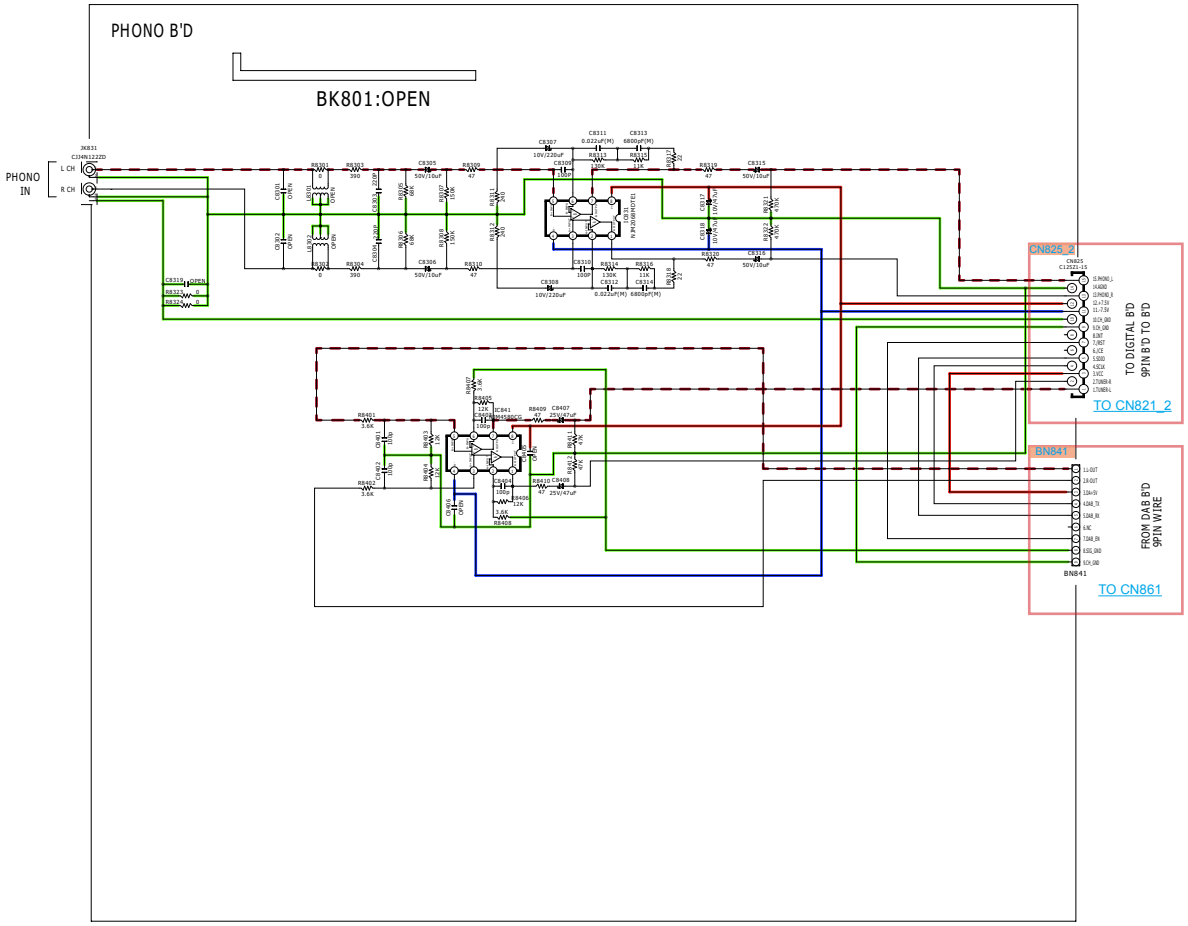
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

SCH15-1 PHONO, TUNER(Except DABE2)



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

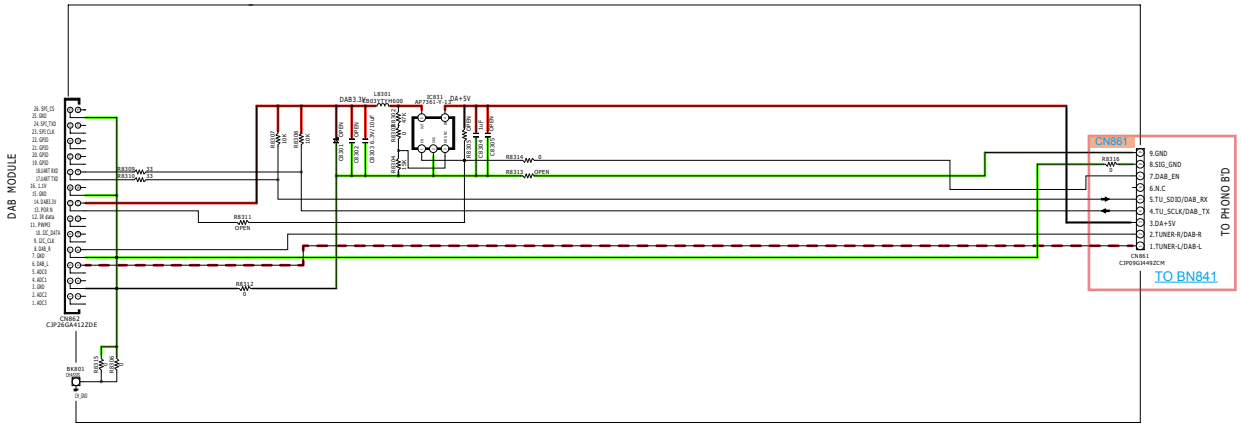
SCH15-2 PHONO, TUNER(Only DABE2)



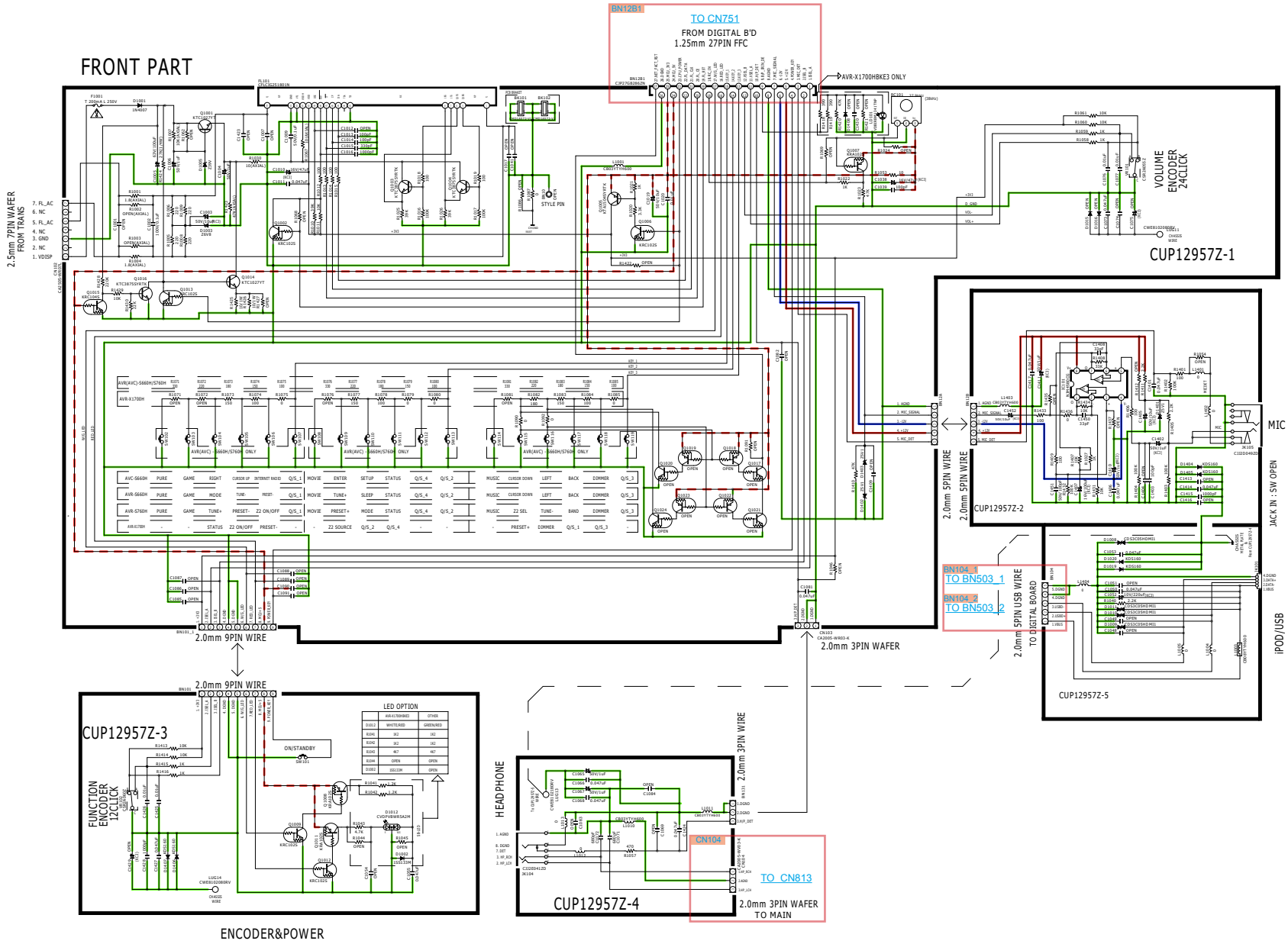
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

SCH16 DAB (Only DABE2)

DAB B'D

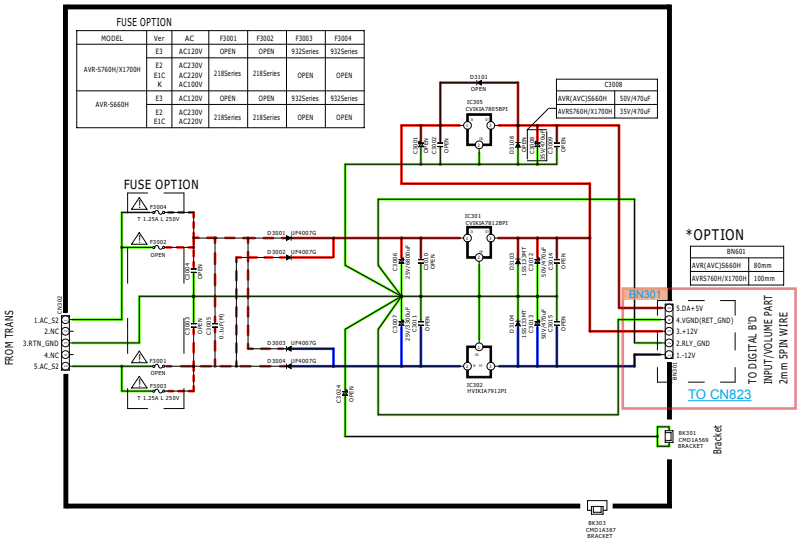


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

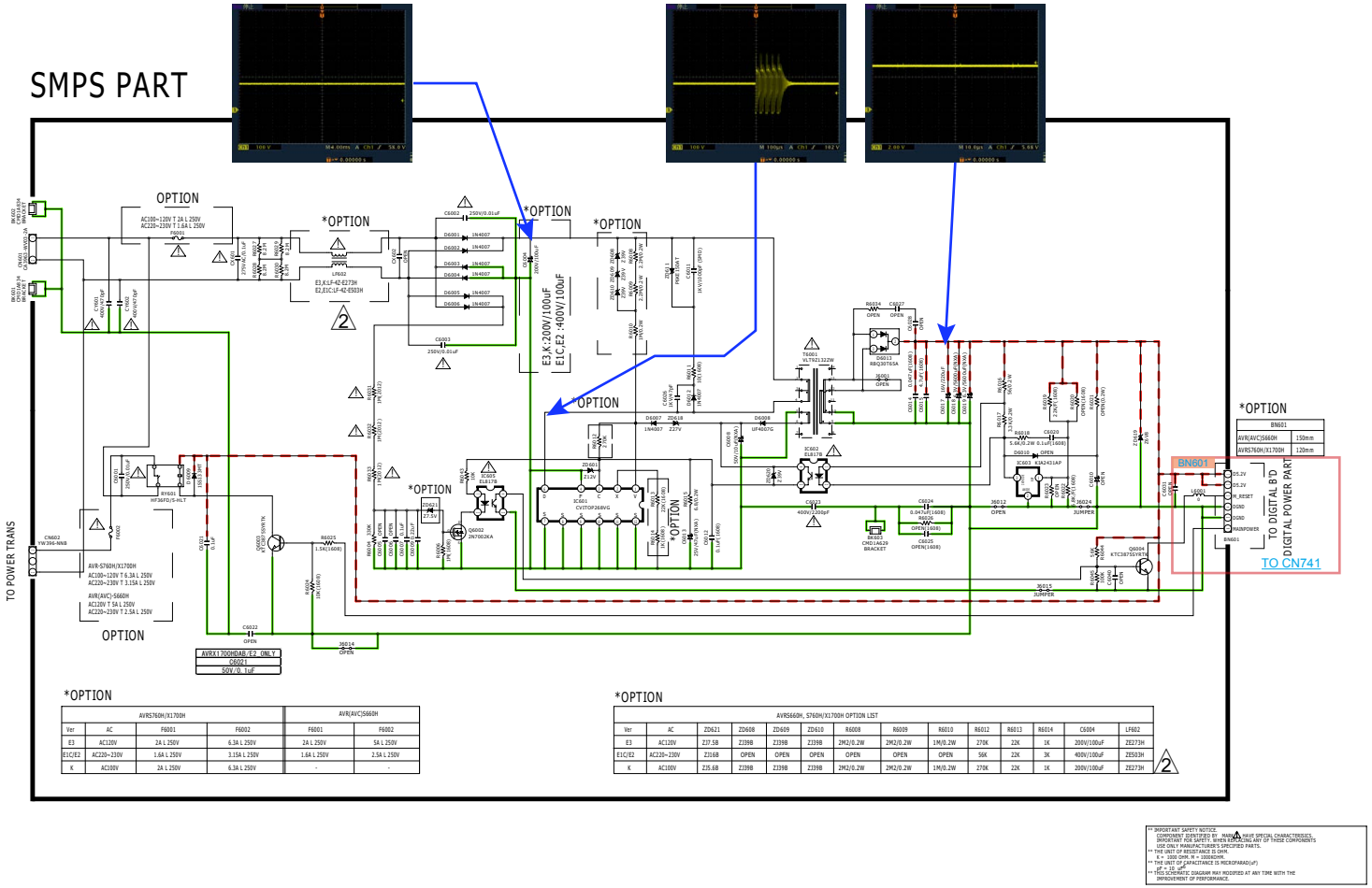


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

REGULATOR PART



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER



*OPTION

AVRS760H/X1700H				AVR(AVC)S660H	
Ver	AC	F6001	F6002	F6001	F6002
E3	AC120V	2A L 250V	6.3A L 250V	2A L 250V	5A L 250V
E1C/E2	AC220~230V	1.6A L 250V	3.15A L 250V	1.6A L 250V	2.5A L 250V
K	AC100V	2A L 250V	6.3A L 250V	-	-

*OPTION

AVRS660H, S760H/X1700H OPTION LIST														
Ver	AC	ZD621	ZD608	ZD609	ZD610	R6008	R6009	R6010	R6012	R6013	R6014	C6004	LF602
E3	AC120V	ZJ7.5B	ZJ39B	ZJ39B	ZJ39B	2M2/0.2W	2M2/0.2W	1M/0.2W	270K	22K	1K	200V/100uF	ZE273H
E1C/E2	AC220~230V	ZJ16B	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	56K	22K	3K	400V/100uF	ZE503H
K	AC100V	ZJ5.6B	ZJ39B	ZJ39B	ZJ39B	2M2/0.2W	2M2/0.2W	1M/0.2W	270K	22K	1K	200V/100uF	ZE273H

*OPTION

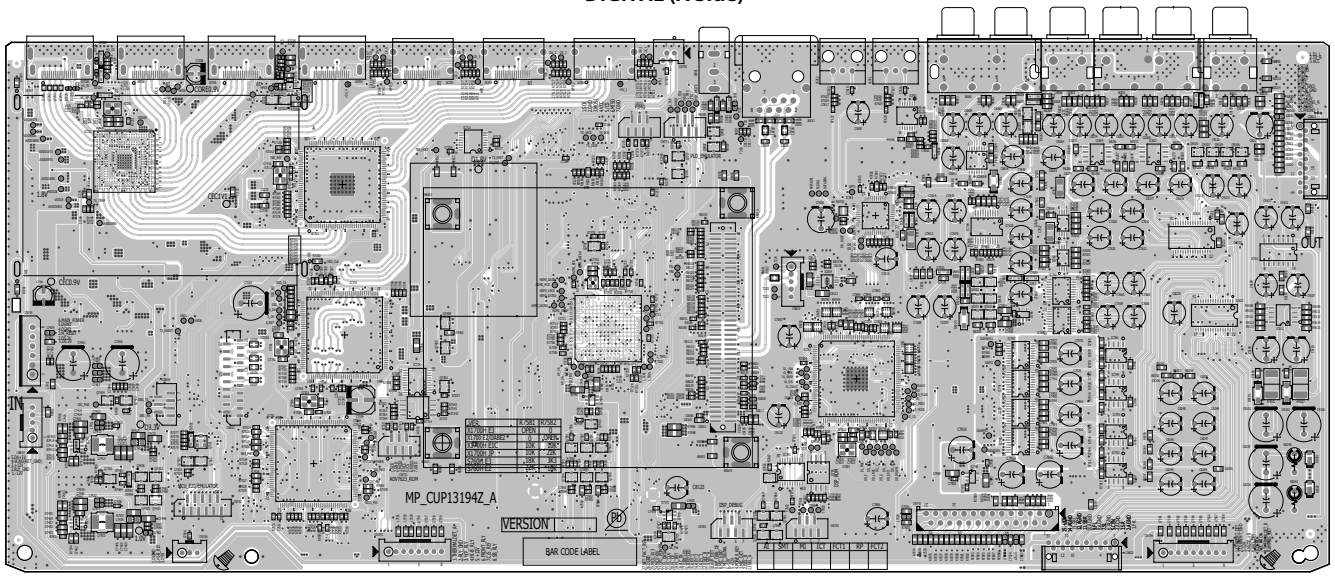
BN601	
AVR(AVC)S660H	150mm
AVRS760H/X1700H	120mm

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

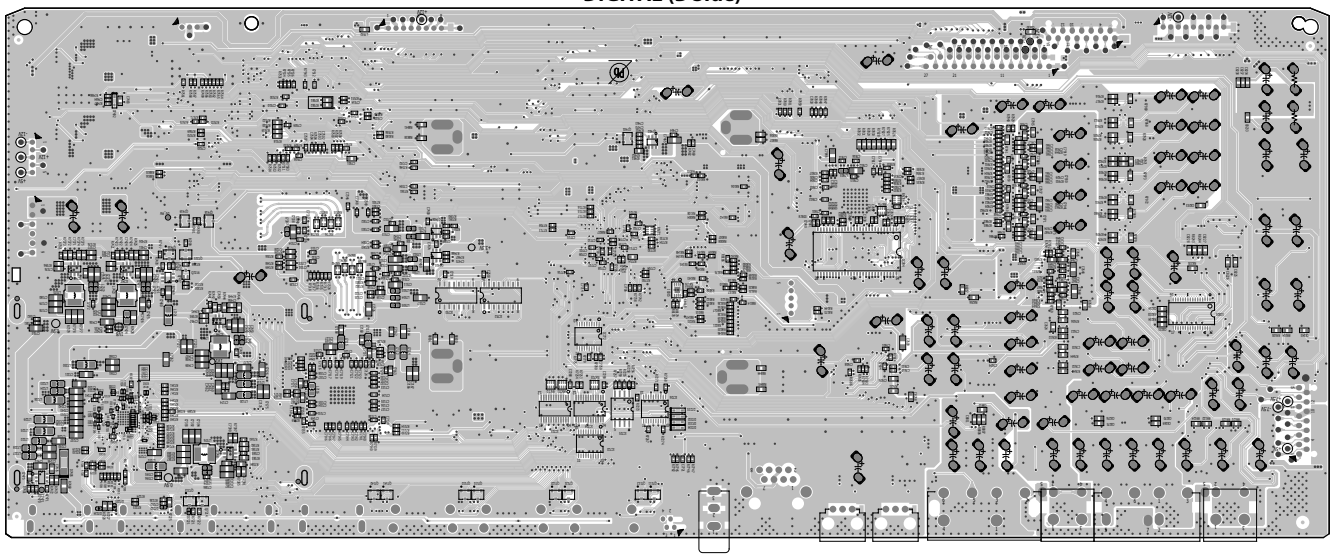
Lead-free Solder
When soldering, use the Lead-free Solder (Sn-Ag-Cu).

DIGITAL, TUNER Except DABE2, DAB Only DABE2, PHONO Except DABE2, PHONO Only DABE2

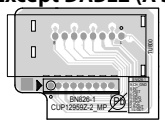
DIGITAL (A Side)



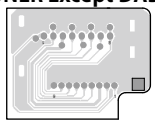
DIGITAL (B Side)



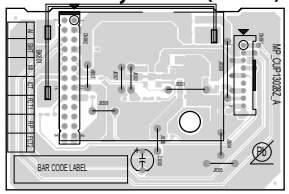
TUNER Except DABE2 (A Side)



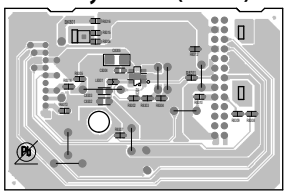
TUNER Except DABE2 (B Side)



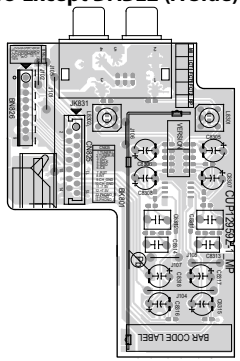
DAB Only DABE2 (A Side)



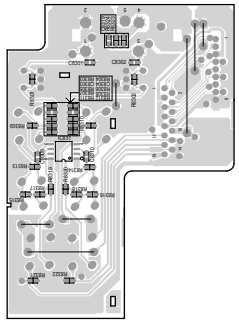
DAB Only DABE2 (B Side)



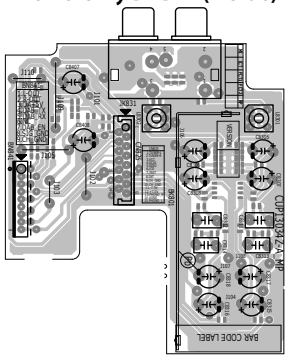
PHONO Except DABE2 (A Side)



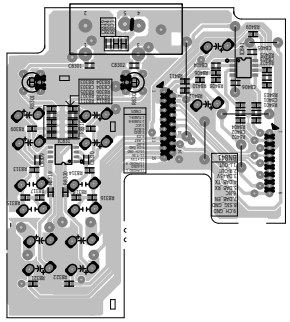
PHONO Except DABE2 (B Side)



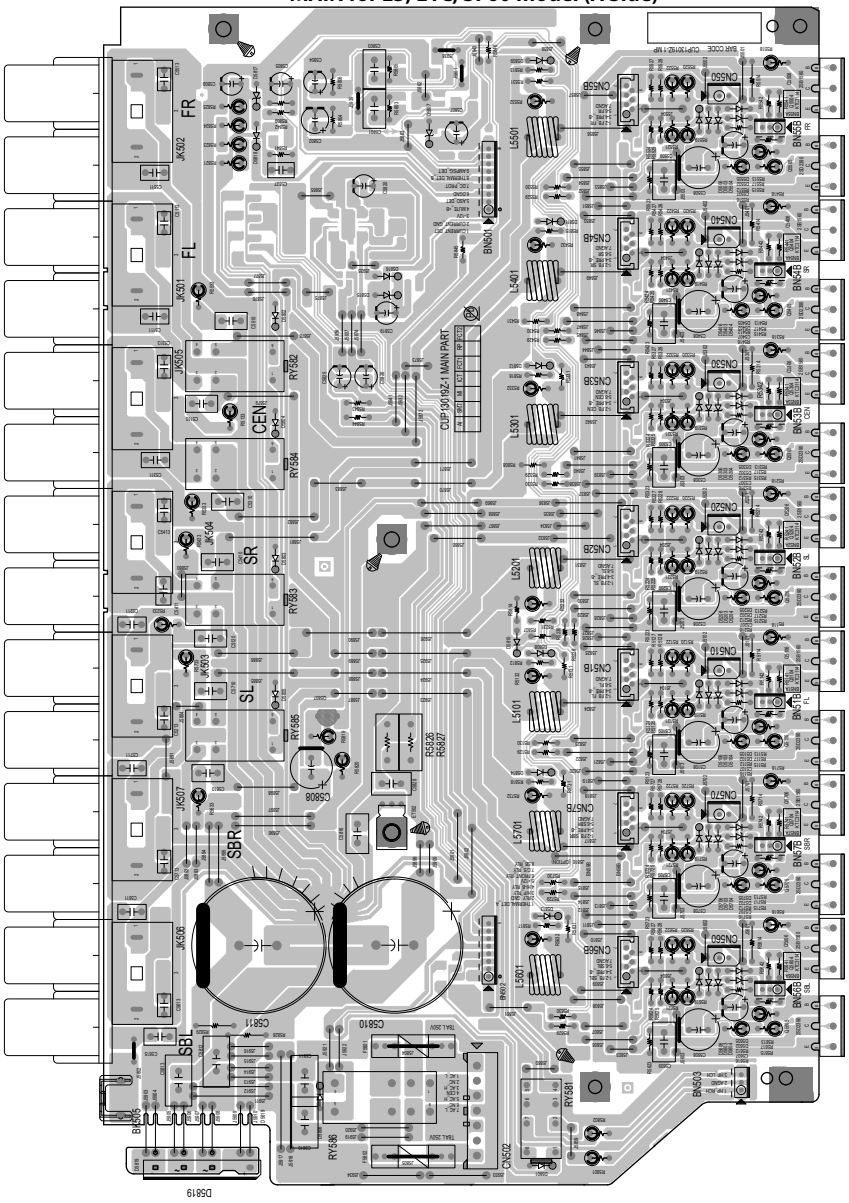
PHONO Only DABE2 (A Side)



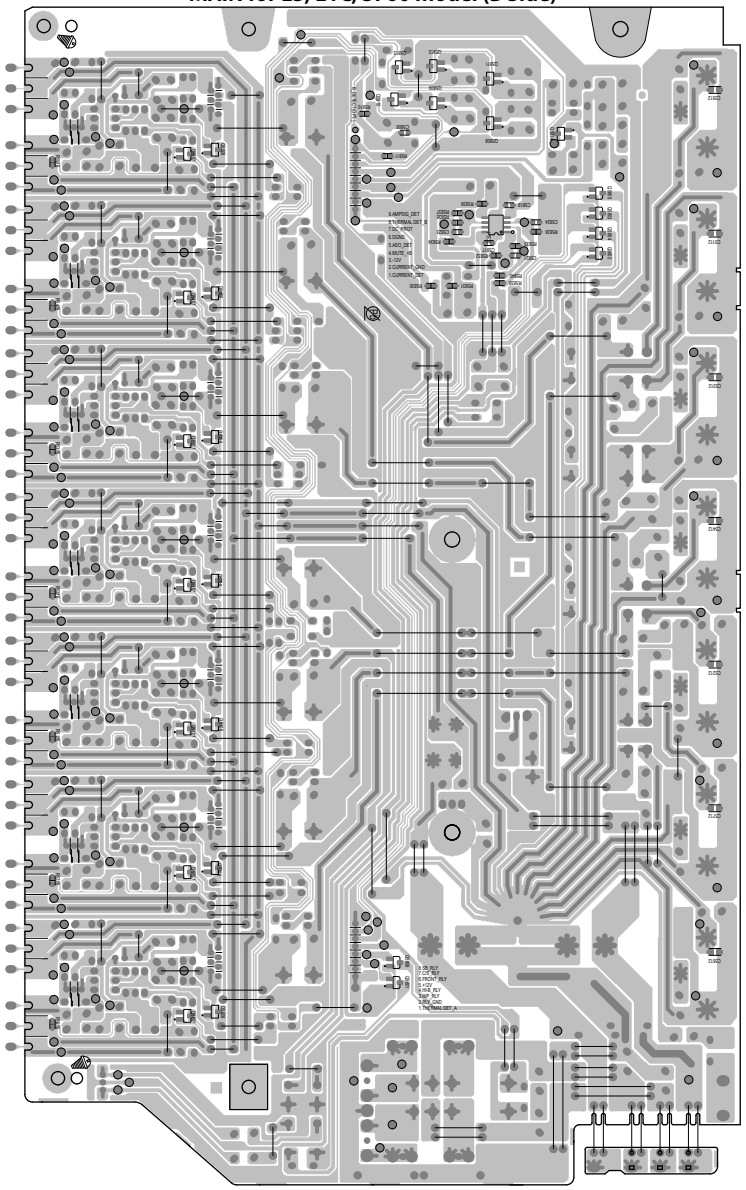
PHONO Only DABE2 (B Side)



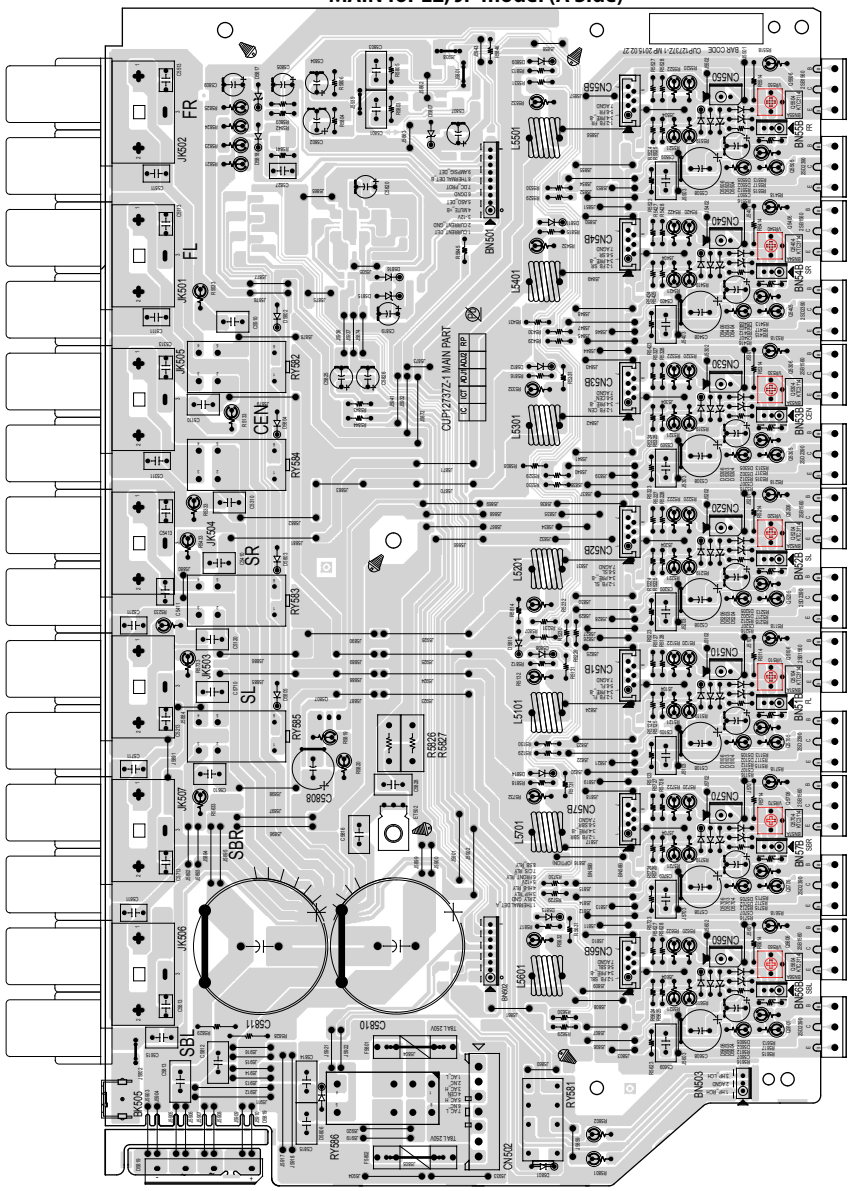
MAIN for E3, E1C, S760 model (A Side)



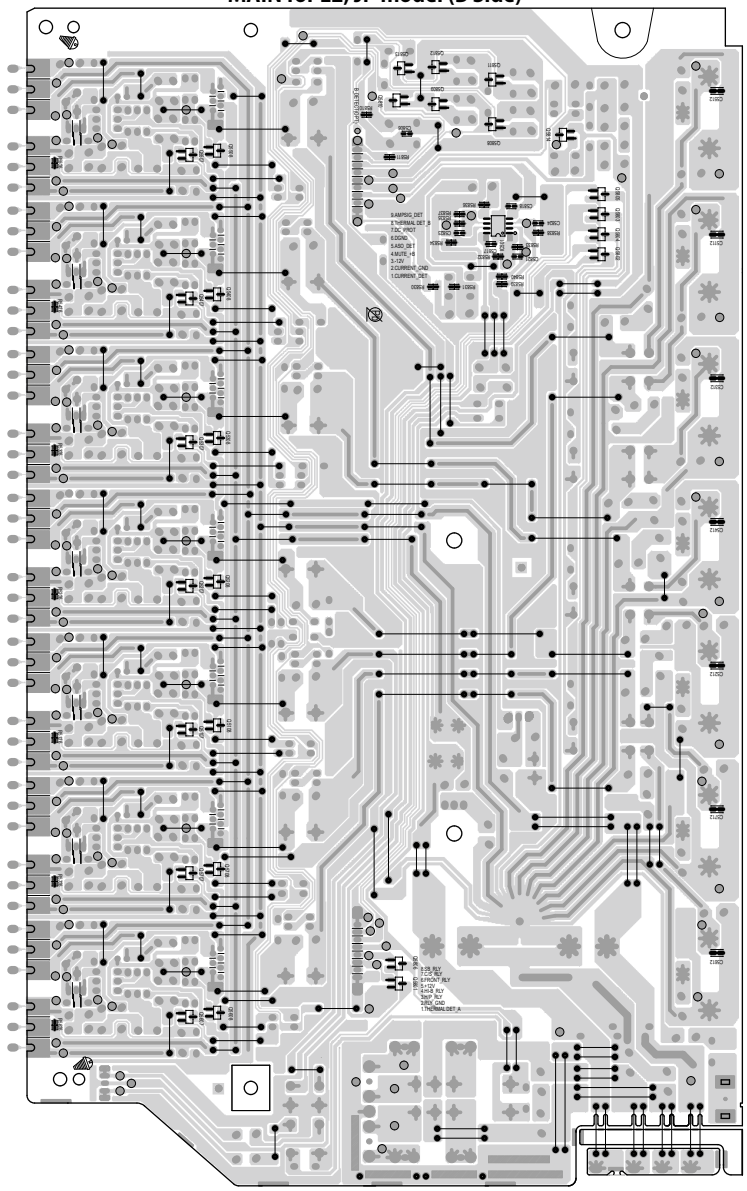
MAIN for E3, E1C, S760 model (B Side)



MAIN for E2, JP model (A Side)

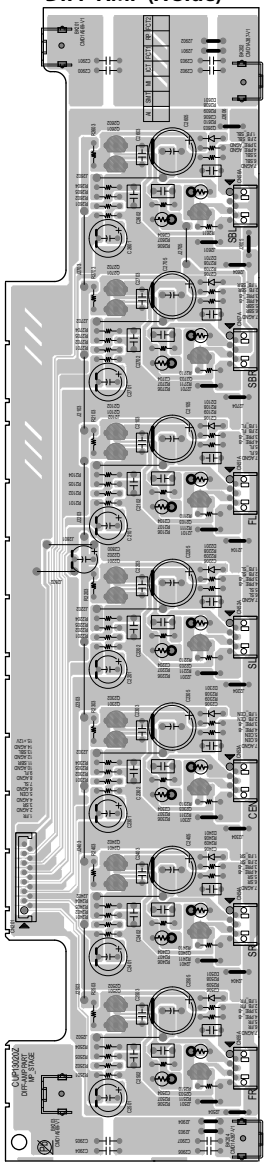


MAIN for E2, JP model (B Side)

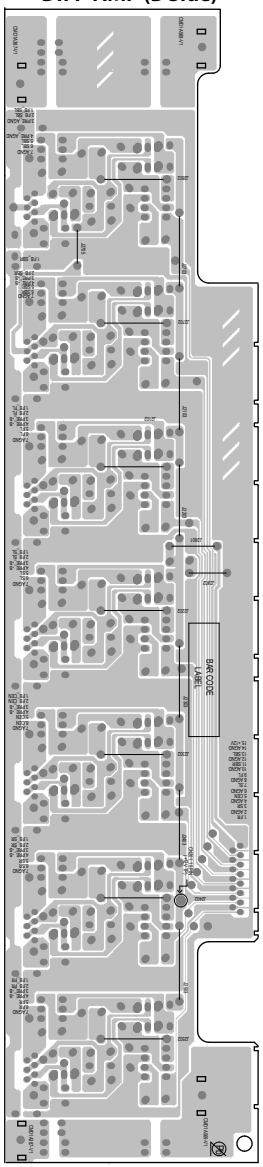


DIFF-AMP, BIAS-TR, FRONT CABLE GUIDE, HDMI CABLE GUIDE, SMPS, REGULATOR

DIFF-AMP (A Side)



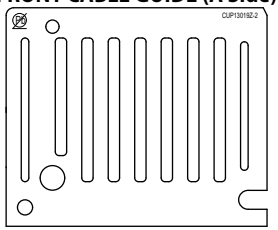
DIFF-AMP (B Side)



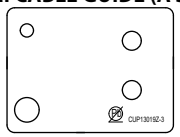
BIAS-TR (A Side)

BIAS-TR (B Side)

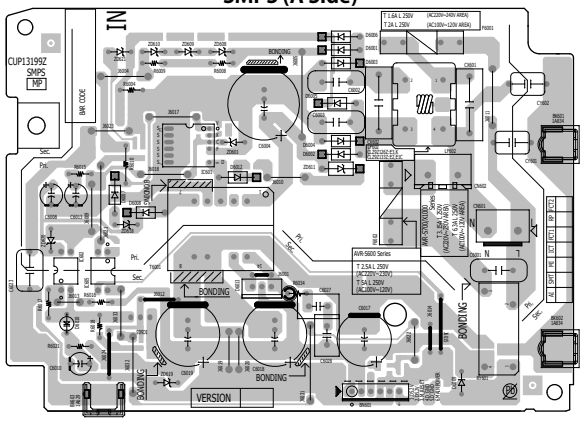
FRONT CABLE GUIDE (A Side)



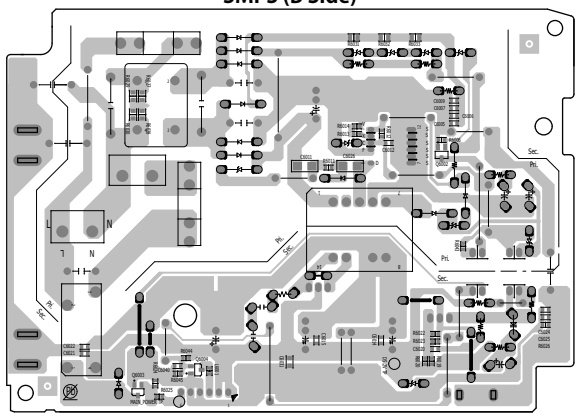
HDMI CABLE GUIDE (A Side)



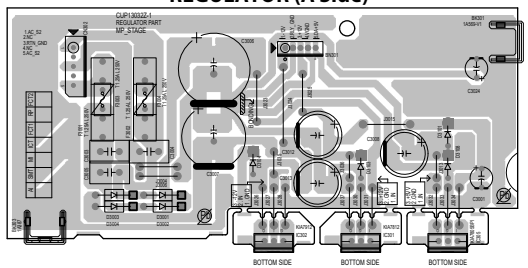
SMPS (A Side)



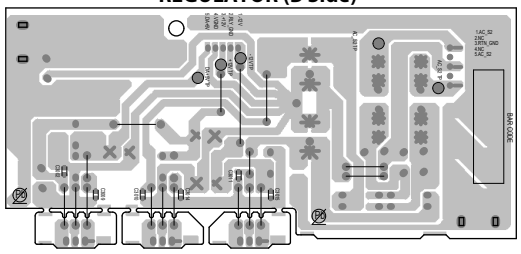
SMPS (B Side)



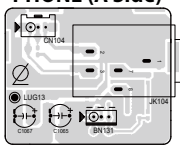
REGULATOR (A Side)



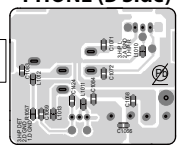
REGULATOR (B Side)



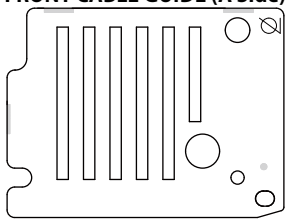
PHONE (A Side)



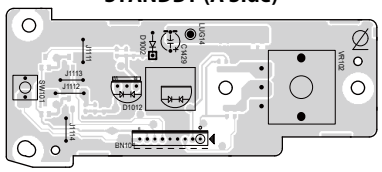
PHONE (B Side)



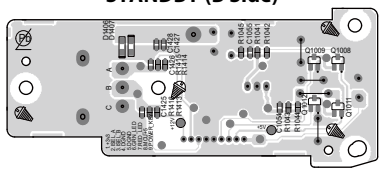
FRONT CABLE GUIDE (A Side)



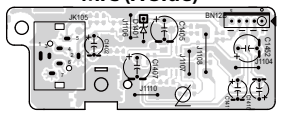
STANDBY (A Side)



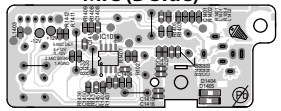
STANDBY (B Side)



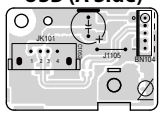
MIC (A Side)



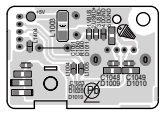
MIC (B Side)



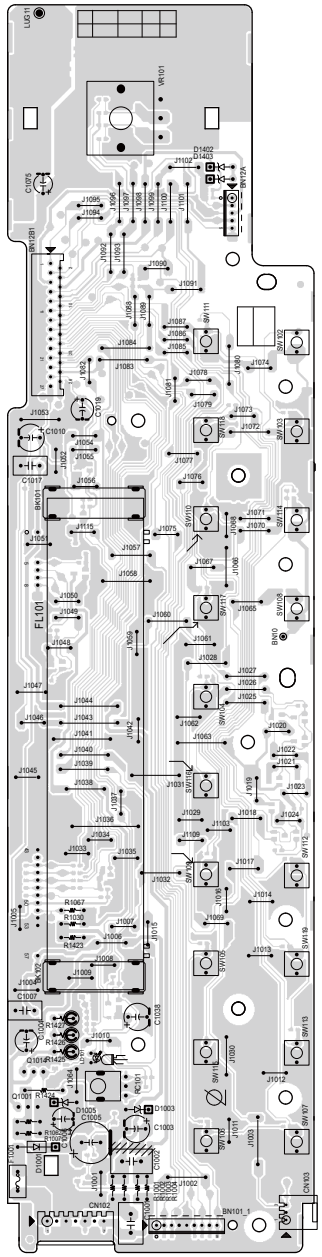
USB (A Side)



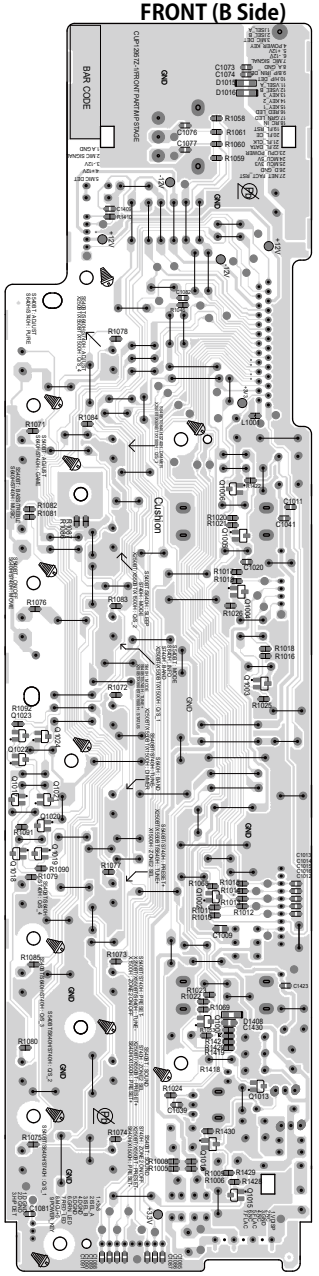
USB (B Side)



FRONT (A Side)

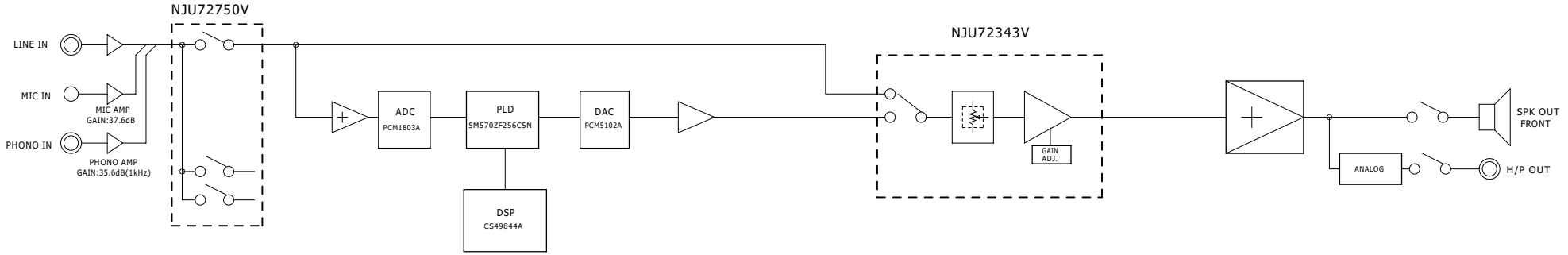


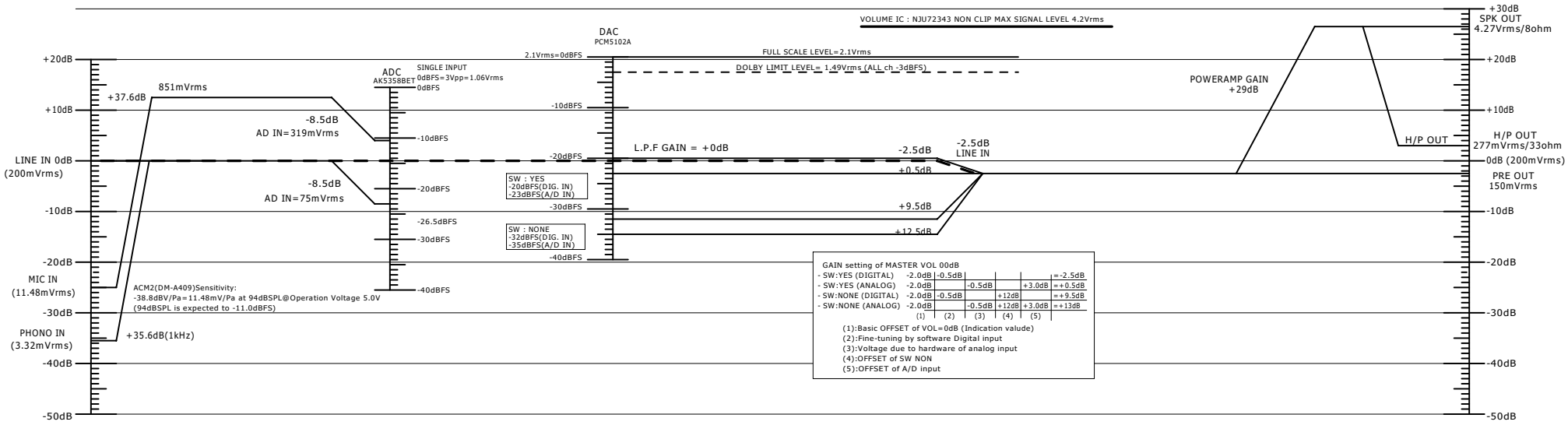
FRONT (B Side)



AVRS760H/X1700H LEVEL DIAGRAM

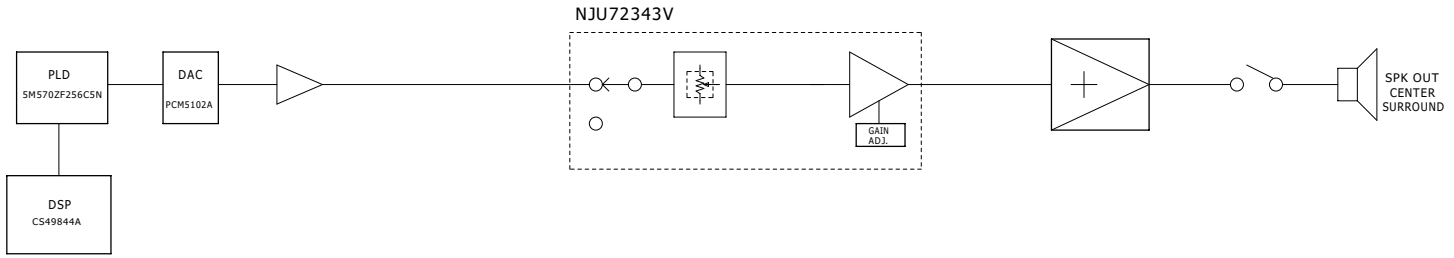
FRONT CHANNEL

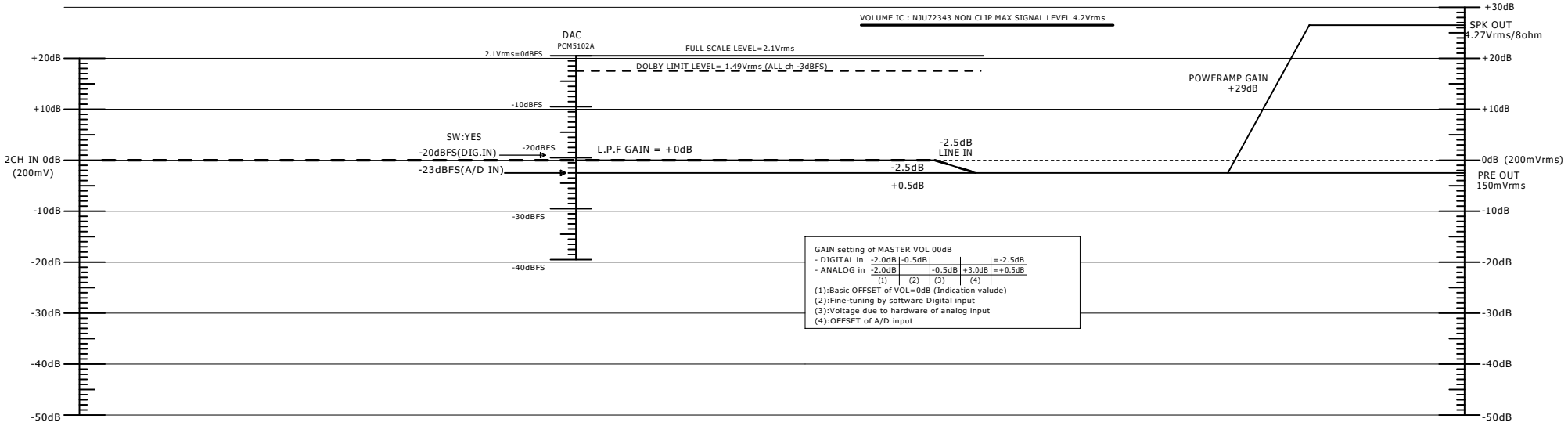




AVRS760H/X1700H LEVEL DIAGRAM

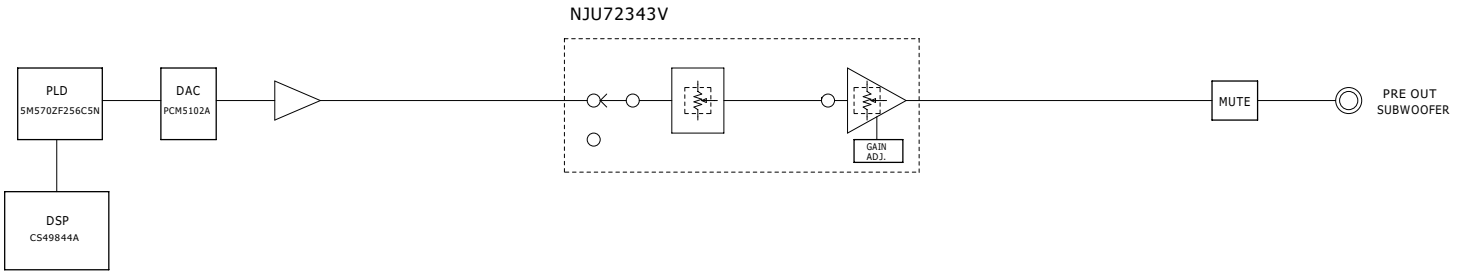
CENTER/SURROUND/SURROUND BACK CHANNEL

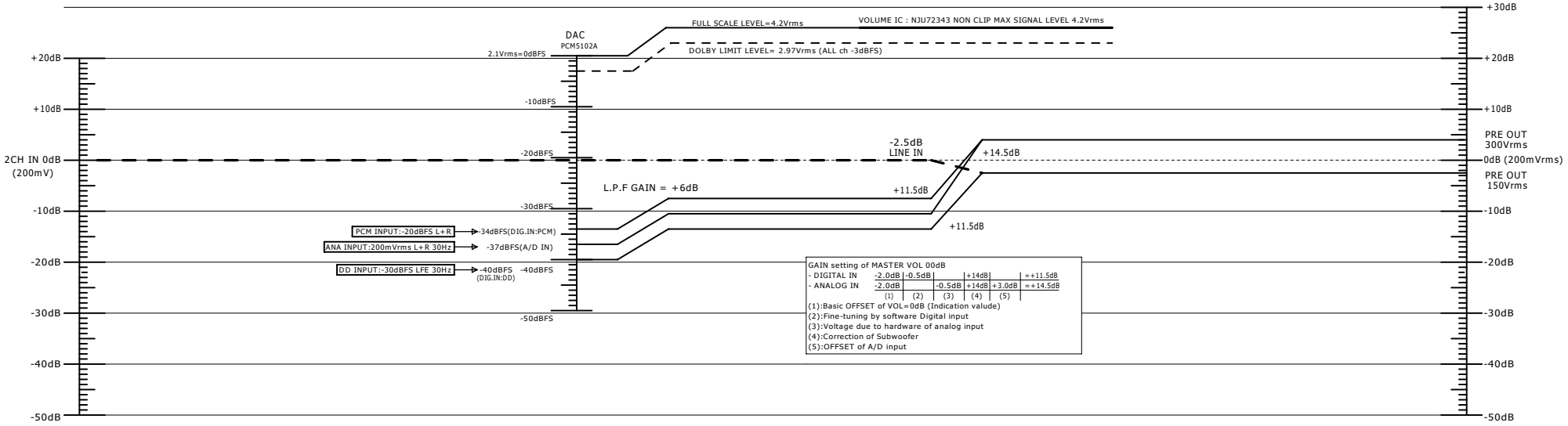




AVRS760H/X1700H LEVEL DIAGRAM

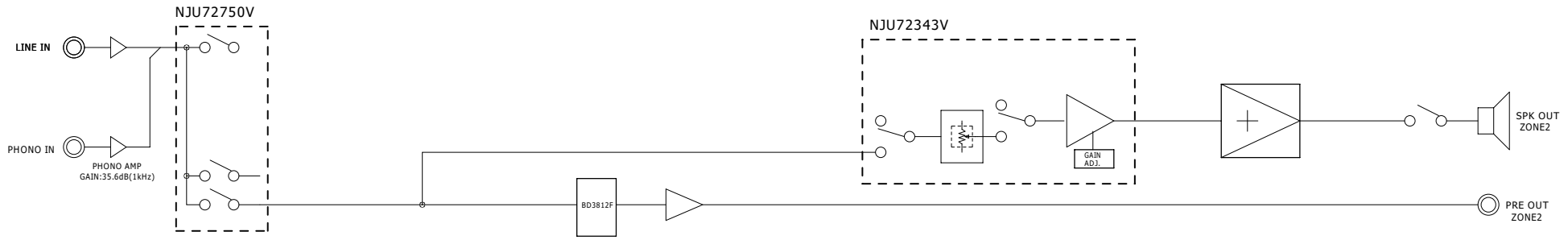
SUBWOOFER CHANNEL

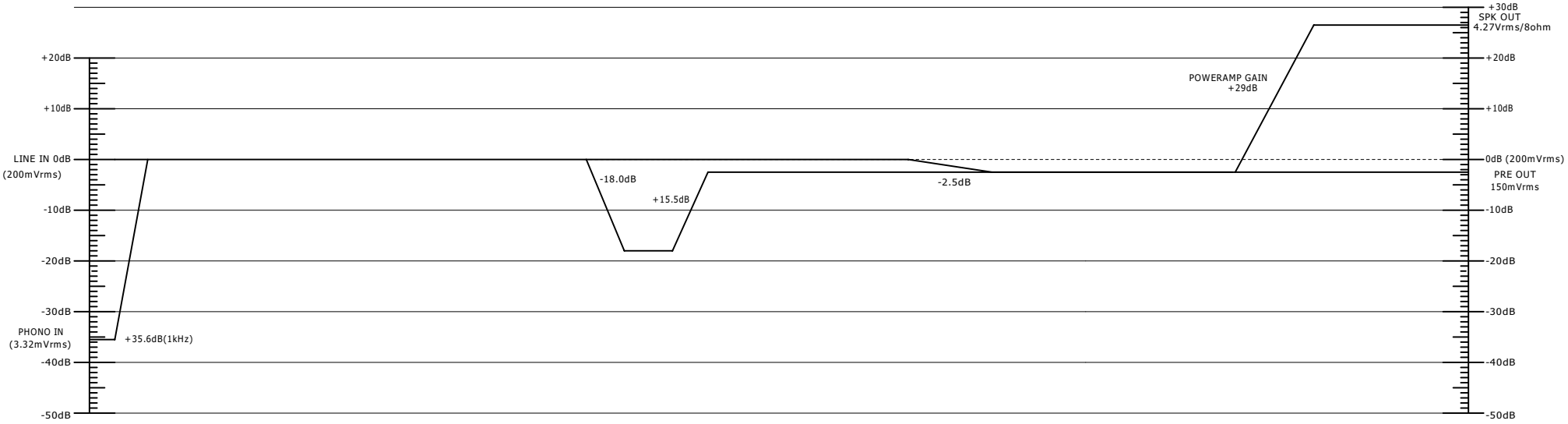




AVRS760H/X1700H LEVEL DIAGRAM

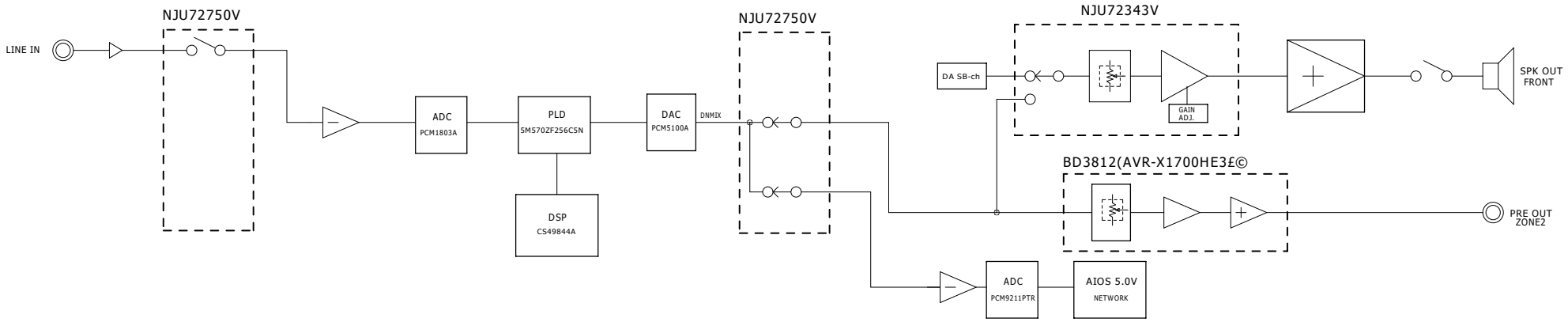
ZONE2 (w/o Source)

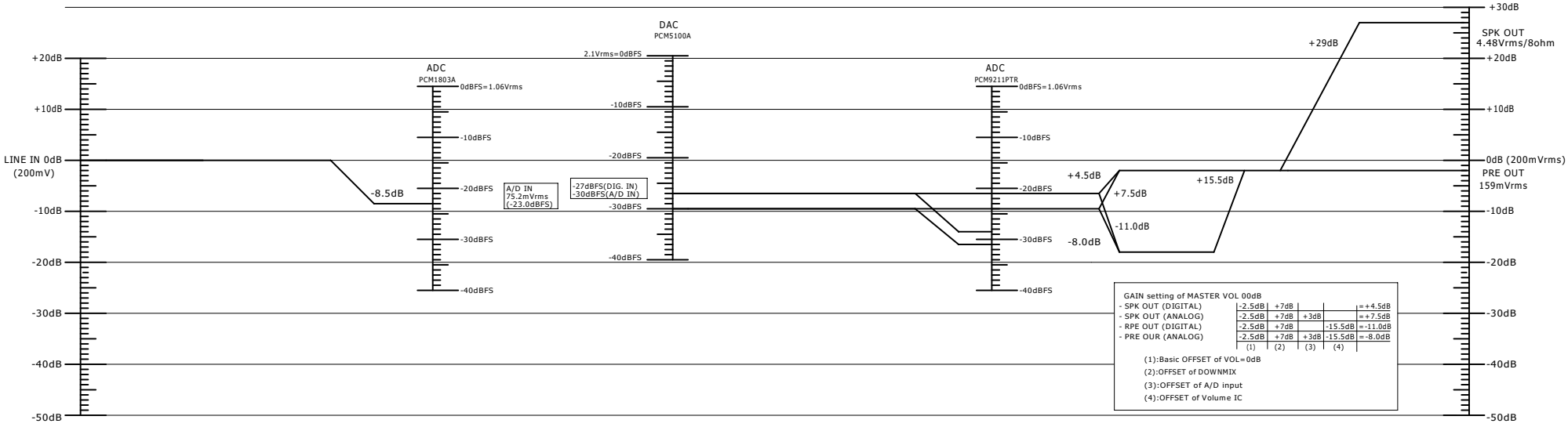




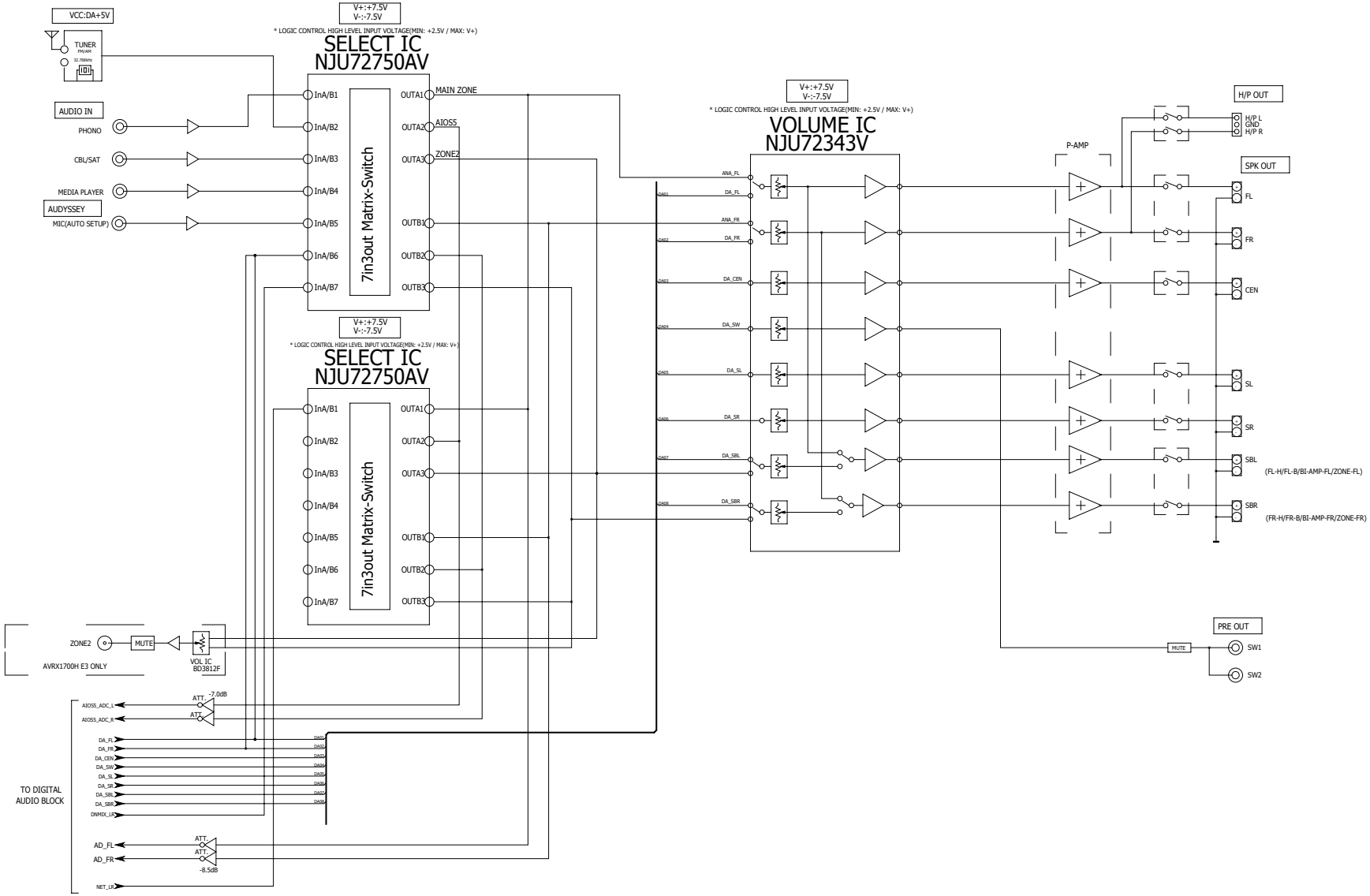
AVRS760H/X1700H LEVEL DIAGRAM

ZONE2 (w/ Source)

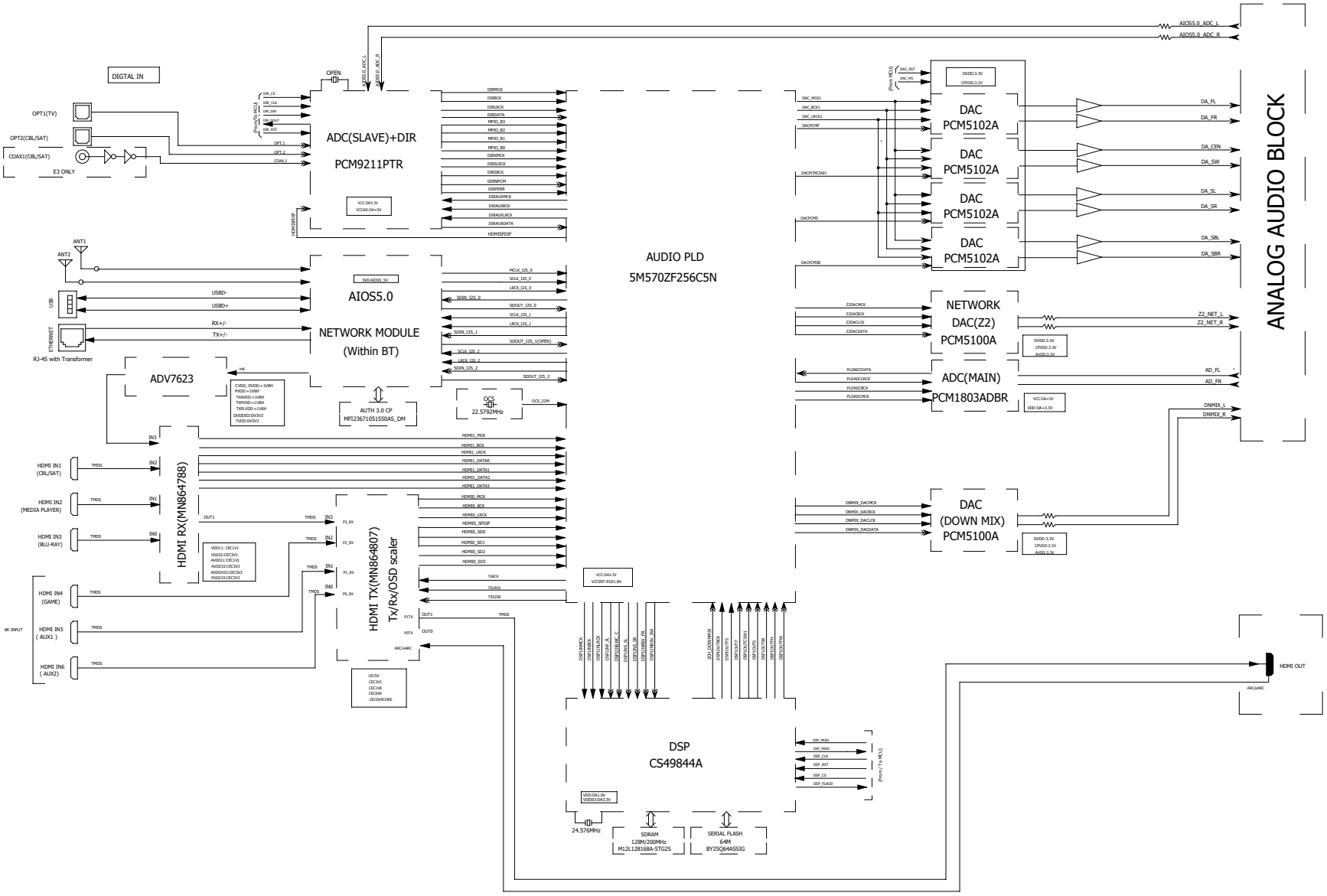




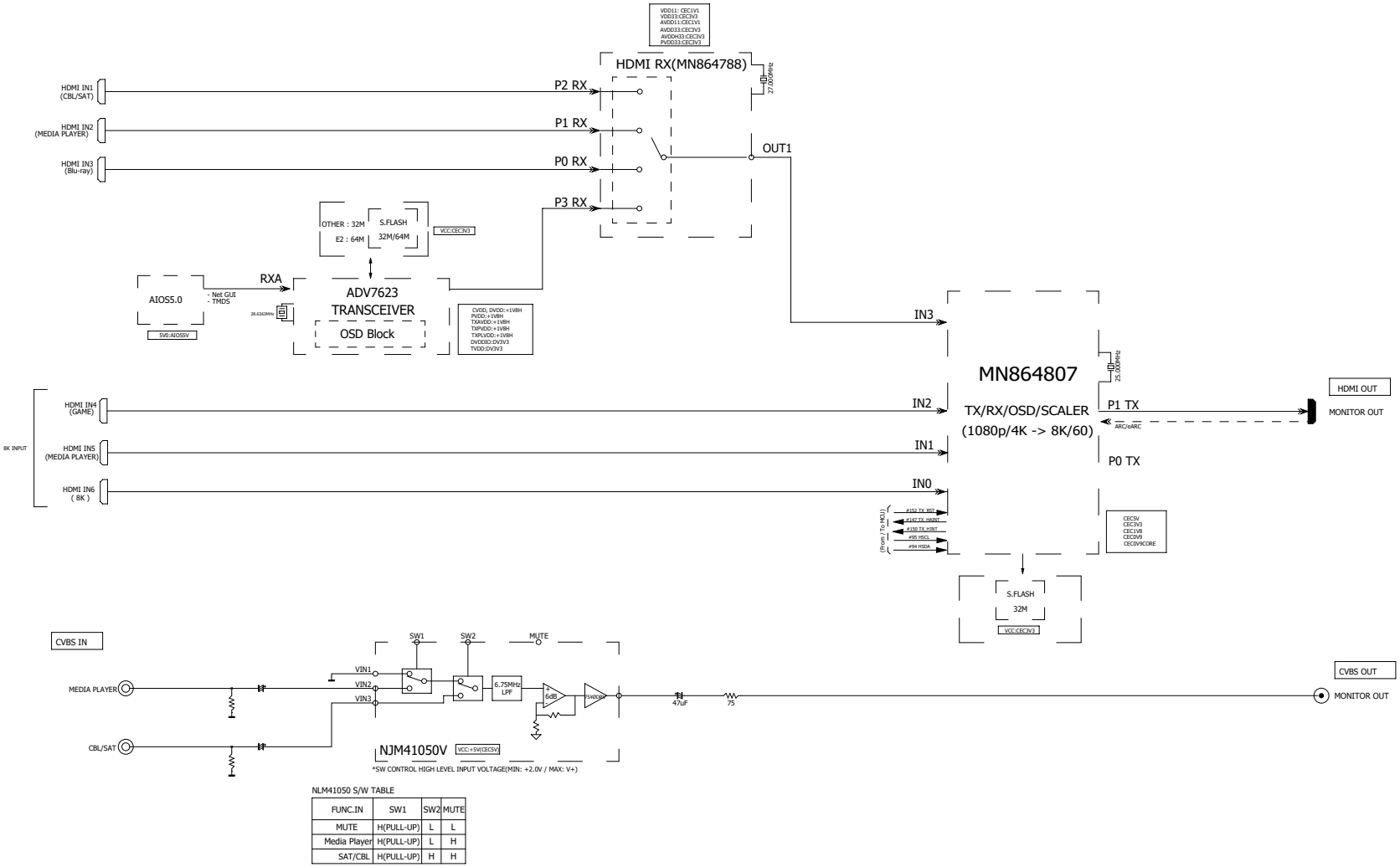
AVRS760H/X1700H ANALOG AUDIO BLOCK



AVRS760H/X1700H DIGITAL AUDIO BLOCK



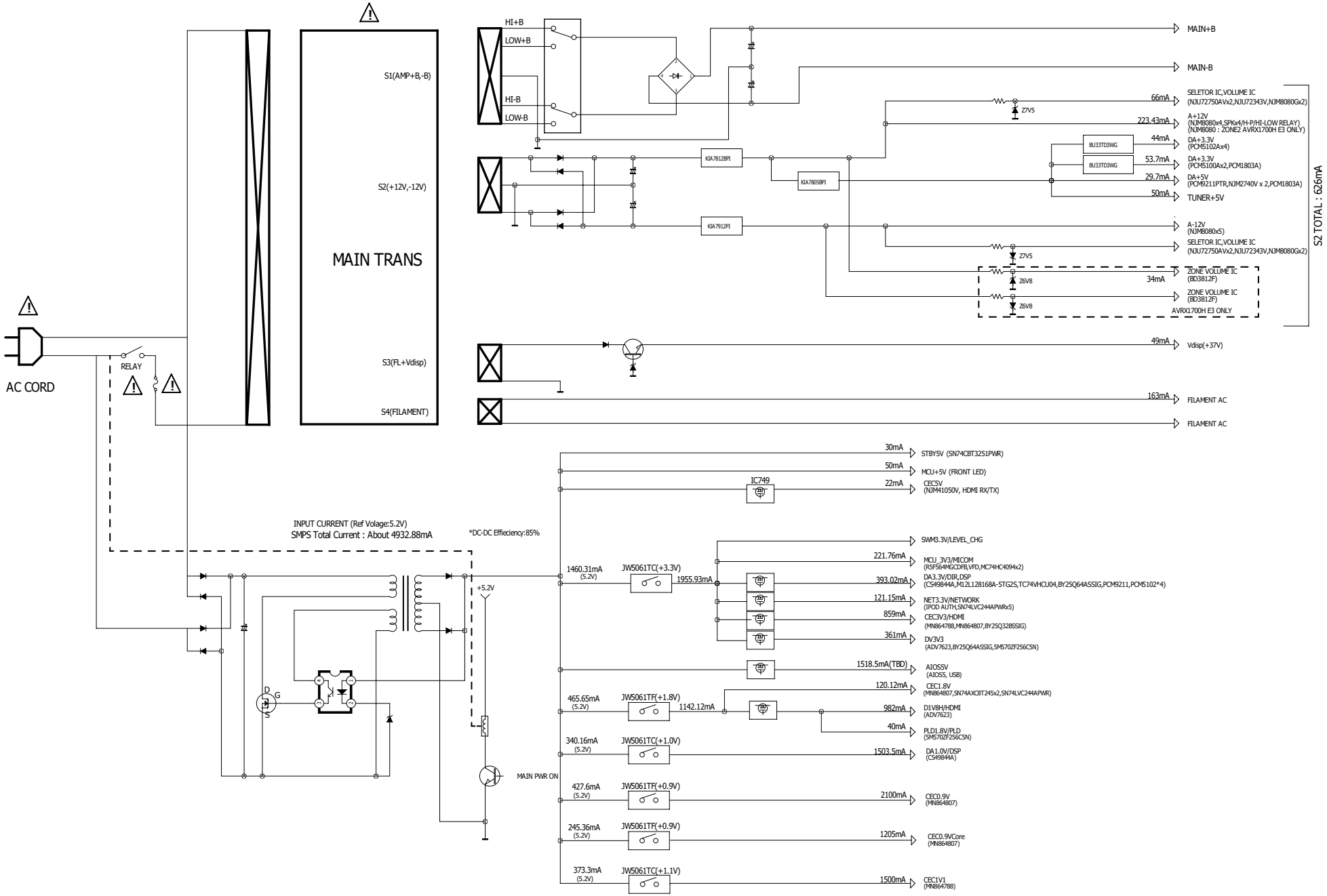
AVRS760H/X1700H VIDEO BLOCK



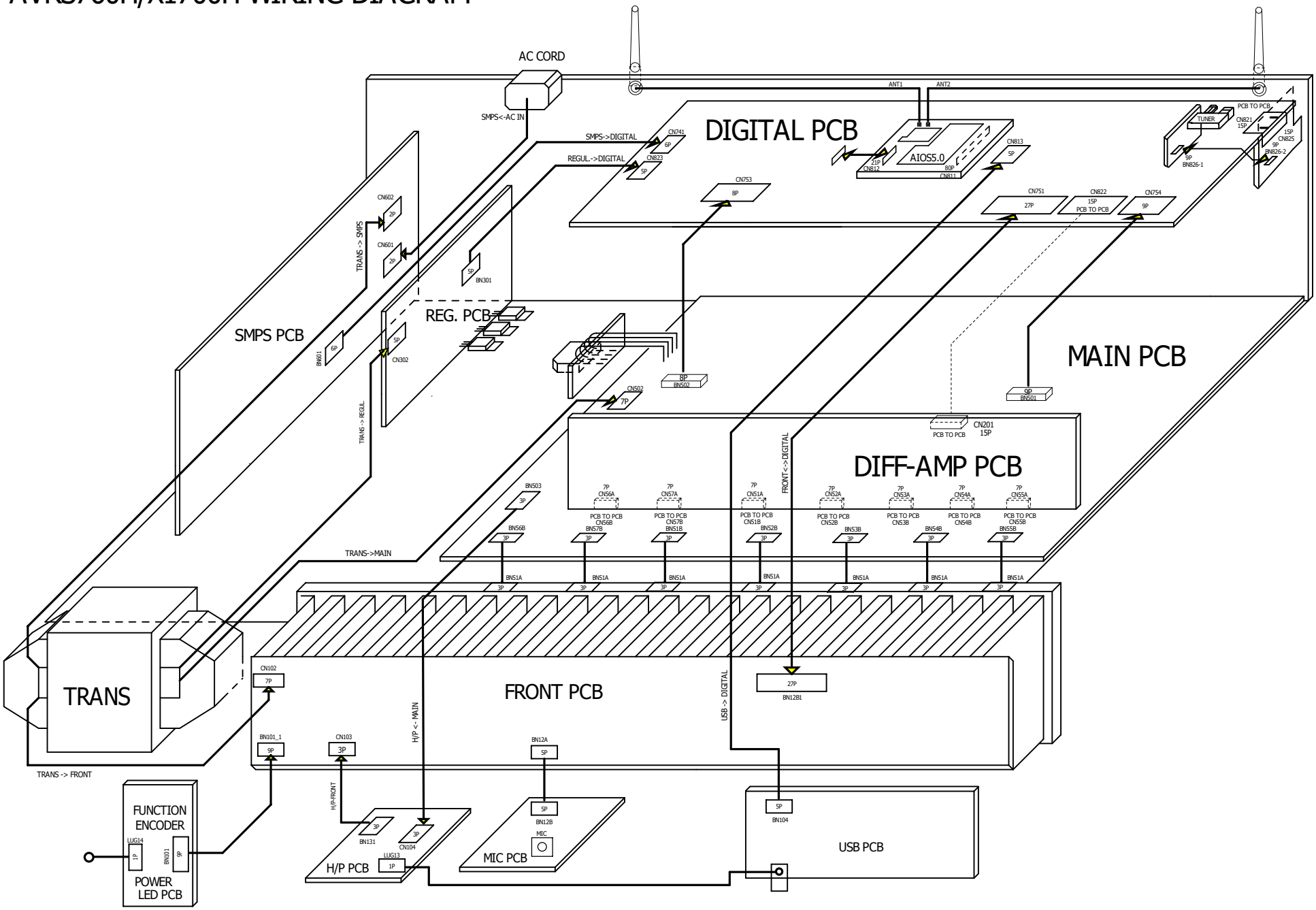
NLM41050 S/W TABLE

FUNC.IN	SW1	SW2	MUTE
MUTE	H(PULL-UP)	L	L
Media Player	H(PULL-UP)	L	H
SAT/CBL	H(PULL-UP)	H	H

AVRS760H/X1700H VCC DIAGRAM



AVRS760H/X1700H WIRING DIAGRAM

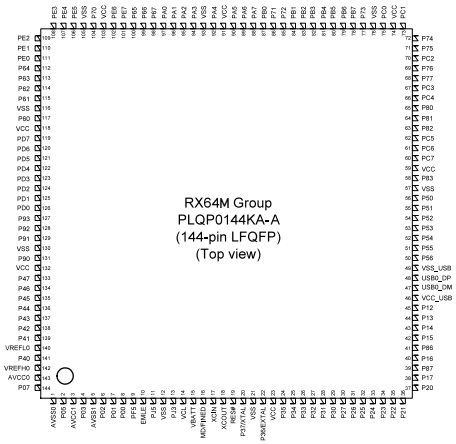


SEMICONDUCTORS

Only major semiconductors are shown, general semiconductors etc. are omitted to list.
The semiconductor which described a detailed drawing in a schematic diagram are omitted to list.

1. IC's

R5F564MGCDFB (DIGITAL_MCU : IC751)



R5F564MGCDFB Terminal Functions

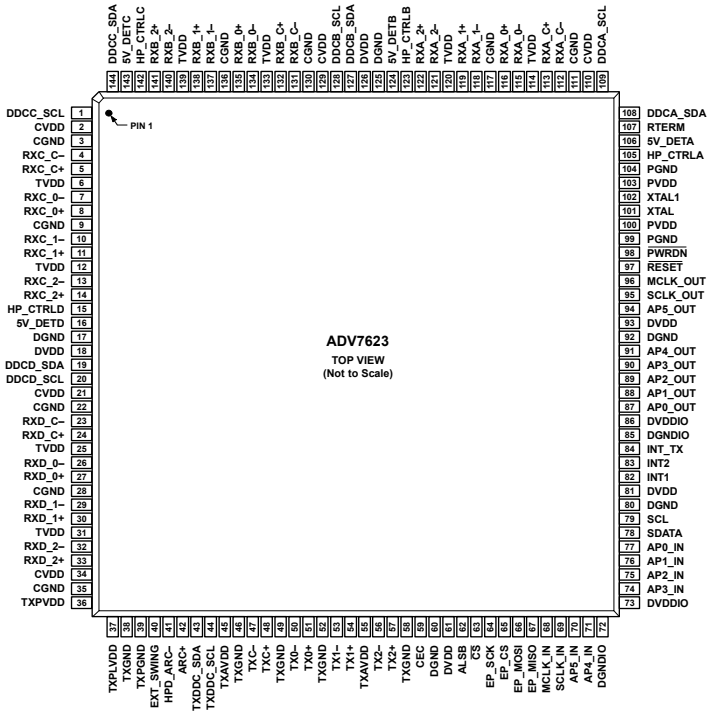
Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
1	AVSS0	AVSSO	-		-	-	-	Ground pin
2	P05/IRQ13	POWER_KEY	I	M3VPu	I	I	I	Power key input (Set to interrupt to detect while in wait mode)
3	AVCC1	AVCC1	-		-	-	-	Power supply pin
4	P03/IRQ11	RED_LED	O		L/H	L	H	Powe/Standby LED control pin
5	AVSS1	AVSS1	-		-	-	-	Ground pin
6	P02/SCK6/IRQ10/ AN120	TX_HAINT	I	Pd	I	I	I	HDMI Tx (MN864807) audio interrupt signal det
7	P01/RXD6/IRQ9/ AN119	RXD_MI232O	I	M3VPu	I	I	I	External data input port (for AMX/FW update via 232C with FFC Connector)
8	P00/TXD6/IRQ8/ AN118	TXD_MO232I	O		L	L	L	External data input port (for AMX/FW update via 232C with FFC Connector)
9	PF5/IRQ4	WHITE_LED (X1700H (NA) / GREEN_LED (X1700H (EU/CH/ JP)/S760H/S660H)	O		L	L	L	Power LED control pin
10	EMLE	EMLE	I	Pd	-	-	-	E20 Emulator control pin (for development)
11	PJ5	VSEL_A	I	SW3VPu	I	I	I	Master volume knob encoder
12	VSS	VSS	-		-	-	-	Ground pin
13	PJ3	VSEL_B	I	SW3VPu	I	I	I	Master volume knob encoder
14	VCL	VCL	I		-	-	-	Smoothing capacitor connection pin
15	VBATT	VBATT	-		-	-	-	Power supply pin
16	MD/FINED	MD	I	M3VPu	I	I	I	Pin for setting the operating mode (Boot mode, User boot mode, Single chip mode)
17	XCIN	XCIN	I	Pd	-	-	-	NC(Pull down)
18	XCOUT	XCOUT	I		-	-	-	NC(open)
19	RES	RESET	I	M3VPu	-	-	-	Reset signal input pin
20	XTAL/P37	XTAL	I		-	-	-	Pin for a crystal resonator (Xin: 12MHz × 10)
21	VSS	VSS	-		-	-	-	Ground pin
22	EXTAL/P36	EXTAL	-		-	-	-	Pin for a crystal resonator (Xin: 12MHz × 10)
23	VCC	VCC	-		-	-	-	Power supply pin
24	UPSEL/P35(IN)/NMI	DSP_FLAG0	I	DA3VPu (X1700/ S760)/Pd (S660)	L	L	L	DSP(CS49844A) interrupt signal input pin(X1700H/S760H) / DSP(ADI) interrupt signal input pin(S660H)
25	TRST#/P34/SCK6/ SCK0//IRQ4	TRST#	I	Pd	I	I	I	E20 Emulator control pin (for development)
26	P33/TIOCD0/RXD6/ RXD0/IRQ3-DS	RC_IN	I	Pd	I	I	I	Remote input
27	P32/TXD6/TXD0/ IRQ2-DS	BDOWN	I	M3VPu	I	I	I	Power down detection
28	TMS/P31/IRQ1-DS	TMS/NC (NORMAL)	I/I	M3VPu	-/I	-/I	I	E20 Emulator control pin (for development. When normal operating mode, set to input)
29	TDI/P30/RXD1/ IRQ0-DS	TDI/RXD_MITSUBI-SHI	I/O/I	M3VPu	-/-/I	-/-/I	I	E20 Emulator control pin / CPU ROM writer control pin (for development. When normal operating mode, set to input)
30	TCK/P27/SCK1	TCK/NC(NORMAL)	I/I/I	M3VPu	-/-/I	-/-/I	I	E20 Emulator control pin (for development. When normal operating mode, set to input)
31	TDO/P26/TXD1	TDO/TXD_MITSUBI-SHI	O/O/I	M3VPu	-/-/I	-/-/I	I	E20 Emulator control pin / CPU ROM writer control pin (for development. When normal operating mode, set to input)
32	P25/RXD3	ADV7623_RST	O	Pd	L	L	L	HDMI transceiver w/ GUI(ADV7623) reset control pin
33	P24/SCK3	MVOL_MUTE	O		L	L	L	Volume control pin (NJU72343)
34	P23/TXD3	E_RTS_MOEI	O	NET3VPu	L	L	L	Network Module control pin
35	P22/SCK0	E_CTS_MIEO	I	NET3VPu	I	I	I	Network Module control pin
36	P21/RXD0/IRQ9	E_RXD_MIEO	I	NET3VPu	I	L	I	Network Module control pin
37	P20/TXD0/IRQ8	E_TXD_MOEI	O	NET3VPu	L	L	L	Network Module control pin
38	P17/SCK1/TXD3/ IRQ7	NET_FACT_RST	O(ODR)	Pu (AIOS on board + Internal Pu)	Z	Z	Z	Network Module control pin
39	P87/TXD10	7623_ROM_HOLD	O		L	L	L	Flash ROM for GUI control pin
40	P16/TXD1/RXD3/ IRQ6	TU_SCLK (except X1700HDAB/AVC-S660H) / DAB_TX (X1700HDAB) / NC (AVC-S660H)	O	NC/DAB-3VPu/NC	L	L	L	Tuner control pin
41	P86/RXD10	PRE_Z2_MUTE (X1700H(NA)) / NC (X1700H (EU/CH/ JP)/S760H/S660H)	O	Pd	L	L	L	Mute for zone 2 preout
42	P15/RXD1/SCK3/ IRQ5	TU_SDA (except X1700HDAB/AVC-S660H) / DAB_Rx (X1700HDAB) / NC (AVC-S660H)	I_O	NC/DAB-3VPu/NC	L	L	L	Tuner control pin
43	P14/IRQ4	VEXP_OE	O		L	L	L	Port expander (MC74HC4094) control pin
44	P13/TXD2/IRQ3	VEXP_CLK	O		L	L	L	Port expander (MC74HC4094) control pin
45	P12/RXD2/IRQ2	VEXP_DATA	O		L	L	L	Port expander (MC74HC4094) control pin
46	VCC_USB	VCC_USB	-		-	-	-	Power supply pin
47	USB0_DM	USB0_DM	-		-	-	-	NC(open)
48	USB0_DP	USB0_DP	-		-	-	-	NC(open)
49	VSS_USB	VSS_USB	-		-	-	-	Ground pin
50	P56	TU_SEN (except X1700HDAB/ AVC-S660H) / NC (X1700HDAB/AVC-S660H)	O		L	L	L	Tuner control pin
51	P55/IRQ10	VEXP_STB	O		L	L	L	Port expander (MC14094) control pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
52	P54	NET5V_POWER	O		L	L	L	Network power supply control pin
53	P53	DSP_BUSY(X1700H/S760H) / NC (S660H)	I	DA3VPu	I	I	I	DSP BUSY signal input
54	P52/RXD2	ADV7623_SPI_MI	I		L	L	L	HDMI transceiver w/ GUI(ADV7623) control pin (for GUI)
55	P51/SCK2	ADV7623_SPI_CLK	O		L	L	L	HDMI transceiver w/ GUI(ADV7623) control pin (for GUI)
56	P50/TXD2	ADV7623_SPI_MO	O		L	L	L	HDMI transceiver w/ GUI(ADV7623) control pin (for GUI)
57	VSS	VSS	-		-	-	-	Ground pin
58	P83	SW_HINT	I	CEC3VPu	I	I	I	HDMI Rx (MN864788) interrupt signal input pin
59	VCC	VCC	-		-	-	-	Power supply pin
60	UB/PC7/TXD8/IRQ14	UB	I	Pd	-	-	-	Pins for setting the CPU boot mode (Boot Mode, User Boot Mode)
61	PC6/RXD8/IRQ13	AVSCL	I_O	DV3Pu	L	L	L	VIDEO I2C control for ADV7623
62	PC5/SCK8	AVSDA	I_O	DV3Pu	L	L	L	VIDEO I2C control for ADV7623
63	P82/TXD10	DSP_MOSI	O	DA3VPu	L	L	L	DSP(CS49844A) control pin(X1700H/S760H) / DSP(ADI) control pin(S660H)
64	P81/RXD10	DSP_MISO	I	DA3VPu	L	L	L	DSP(CS49844A) control pin(X1700H/S760H) / DSP(ADI) control pin(S660H)
65	P80/SCK10	DSP_CLK	O	DA3VPu	L	L	L	DSP(CS49844A) control pin(X1700H/S760H) / DSP(ADI) control pin(S660H)
66	PC4/SCK5	DSP_CS	O	DA3VPu	L	L	L	DSP(CS49844A) control pin(X1700H/S760H) / DSP(ADI) control pin(S660H)
67	PC3/TXD5	DSP_ROM_WRITE (X1700H/S760H) / NC (S660H)	O		L	L	L	DSP(CS49844A) ROM writing control (Set to High in writing)
68	P77/TXD11	DSP_RST	O	Pd(1700/S760) / -(S660)	L	L	L	DSP(CS49844A) reset control pin(X1700H/S760H) / DSP(ADI) reset control pin(S660H)
69	P76/RXD11	SEL_DATA	O		L	L	L	Audio selector control pin for NJU72750
70	PC2/RXD5	DA_POWER	O		L	L	L	Digital audio power supply (DA3.3V,DA1.2V) control pin
71	P75/SCK11	CEC_POWER2	O		L	L	H	CEC standby power control (for CEC Standby Mode 3)
72	P74	ADV7623_SPI_CS	O	DV3Pu	L	L	L	HDMI transceiver w/ GUI(ADV7623) control pin (for GUI)
73	PC1/SCK5/IRQ12	MAIN_PLDAERR	I	Pd	L	L	L	DAC/PLD error detection (from Audio PLD and DAC)
74	VCC	VCC	-		-	-	-	Power supply pin
75	PC0/IRQ14	H/P_RL	O		L	L	L	Headphone relay control pin
76	VSS	VSS	-		-	-	-	Ground pin
77	P73	FRONT_RL	O		L	L	L	Speaker relay control pin
78	PB7/TXD9	HSDA	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864788/MN864807
79	PB6/RXD9	HSCL	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864788/MN864807
80	PB5/SCK9	SEL_CLK	O		L	L	L	Audio selector control pin for NJU72750
81	PB4	APLD_CS	O		L	L	L	Audio PLD (5M570ZF256C5N) control pin
82	PB3/SCK4/SCK6	APLD_DATA/DAC_DATA	O/O		L	L	L	Audio PLD (5M570ZF256C5N) control pin/DAC (AK4458VN) control pin
83	PB2	APLD_CLK/DAC_CLK	O/O		L	L	L	Audio PLD (5M570ZF256C5N) control pin/DAC (AK4458VN) control pin
84	PB1/TXD4/TXD6/IRQ4-DS	DAC_MS/DAC_FLT	O		L	L	L	DAC (AK4458VN/PCM5102A) control pin
85	P72	DAC_RST/DAC_MUTE	O		L	L	L	DAC (AK4458VN/PCM5102A) control pin
86	P71	PRE_MUTE	O	Pd	L	L	L	MUTE for preout
87	PB0/RXD4/RXD6/IRQ12	SPRL_SB (X1700H/S760H)/NC (S660H)	O		L	L	L	Speaker relay control pin
88	PA7	ISEL_A	I	SW3VPu	I	I	I	Input selector knob encoder
89	PA6	ISEL_B	I	SW3VPu	I	I	I	Input selector knob encoder
90	PA5	C/S_RL	O		L	L	L	Speaker relay control pin
91	VCC	VCC	-		-	-	-	Power supply pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
92	PA4/TXD5/IRQ5-DS	ZVOL_DATA (X1700H(NA) / NC (X1700H (EU/CH/JP)/S760H/S660H)	O		L	L	L	ZONE 2 volume(BD3812) control pin
93	VSS	VSS	-		-	-	-	Ground pin
94	PA3/RXD5/IRQ6-DS	MVOL_DATA	O		L	L	L	Volume control pin (NJU72343)
95	PA2/RXD5	MVOL_CLK	O		L	L	L	Volume control pin (NJU72343)
96	PA1/SCK5/IRQ11	ZVOL_CLK (X1700H(NA) / NC (X1700H(EU/CH/JP)/S760H/S660H)	O		L	L	L	ZONE 2 volume(BD3812) control pin
97	PA0	H5V_DET	I	Pd	I	I	I	HDMI IN 5V detection signal input pin
98	P67/IRQ15	FL_CE	O		L	L	L	FL display control pin
99	P66	FL_DATA	O		L	L	L	FL display control pin
100	P65	FL_CLK	O		L	L	L	FL display control pin
101	PE7/IRQ7/AN105	KEY3	I	M3VPu	I	I	I	Front Key input (When standby mode,set to inturrupt)
102	PE6/IRQ6/AN104	KEY2	I	M3VPu	I	I	I	Front Key input (When standby mode,set to inturrupt)
103	VCC	VCC	-		-	-	-	Power supply pin
104	P70	Hi-B_RL	O		L	L	L	HIGH-B relay control pin
105	VSS	VSS	-		-	-	-	Ground pin
106	PE5/IRQ5/AN103	KEY1	I	M3VPu	I	I	I	Front Key input (When standby mode,set to inturrupt)
107	PE4/AN102	DC_DET/ASO	I	SW3VPu	I	I	I	Protection detection input pin (for DC and ASO) (A/D converter)
108	PE3/AN101	AMPSIGDET (S760H/X1700H) / NC (S660H)	I	Pd	I	L	I	Signal level monitor pin (AD converter)
109	PE2/RXD12/IRQ7-DS/AN100	CURRENT_DET	I	Pd	I	L	I	Current level monitor pin (A/D converter)
110	PE1/TXD12	THERMAL_TR_B	I	SW3VPu	I	L	I	Protection detection input pin (for Power TR)
111	PE0/SCK12	NET3.3V_POWER	O		L	L	L	Network power supply control pin(Net3.3V)
112	P64	DAB_DET (X1700HDAB) / NC (pull down) (except X1700HDAB)	I		I	I	I	DAB Model identification input (w/ DAB:"H", w/o DAB:"L")
113	P63	CEC_POWER	O	Pd	L	L	H	CEC standby power supply control pin (CEC5V,CEC3.3V,CEC1.8V)(When CEC standby mode3,set to Low)
114	P62	DV_POWER1	O		L	L	L	Digital video power supply control pin(DV5V,DV3.3V) control pin
115	P61	DIR_DOUT	I	DA3VPu	I	I	I	DIR (PCM9211) control pin
116	VSS	VSS	-		-	-	-	Ground pin
117	P60	DIR_DIN	O		L	L	L	DIR (PCM9211) control pin
118	VCC	VCC	-		-	-	-	Power supply pin
119	PD7/IRQ7/AN107	H/P_DET/MIC_DET	I	SW3VPu	I	I	I	Headphones insert detection pin / Microphone insert detection pin (Detect by A/D converter)
120	PD6/IRQ6/AN106	MODE	I		I	I	I	Region setting pin
121	PD5/IRQ5/AN113	DA_POWER2 (X1700H/S760H) / NC (S660H)	O	Pd	L	L	L	Digital audio power supply (D1.0V) control pin
122	PD4/IRQ4/AN112	DIR_RST	O	Pd	L	L	L	DIR (PCM9211) control pin
123	PD3/IRQ3/AN111	TX_HINT	I	CEC3VPu	I	I	I	HDMI Tx (MN864807) interrupt signal input pin
124	PD2/IRQ2/AN110	AIOS_WAKEUP	O		L	L	L	same as NET5V_POWER,NET3.3V_POWER (This port use to control for Network Module standby mode in the future(Low：Deep Standby, High：normal))
125	PD1/IRQ1/AN109	TU_INT (except X1700HDAB/AVC-S660H) / NC (X1700HDAB/AVC-S660H)	I	Pd	L	L	L	Tuner control pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
126	PD0/IRQ0/AN108	CEC_IN	I	STB3VPu	I	I	I	CEC-D control pin
127	P93/AN117	THERMAL_TR_A	I	SW3VPu	I	L	I	Protection detection input pin (for Power TR)
128	P92/RXD7/AN116	TEMP_SENSOR	I	-	I	L	I	Temperature sensor input pin (for SRM)
129	P91/SCK7/AN015	TU_RST (except X1700HDAB/AVC-S660H) / DAB_EN (X1700HDAB) / NC (AVC-S660H)	O	Pd	L	L	L	Tuner control pin
130	VSS	VSS	-		-	-	-	Ground pin
131	P90/TXD7/AN114	H5VOUT_POWER	O	Pd	L	L	L	HDMI 5V power supply control pin
132	VCC	VCC	-		-	-	-	Power supply pin
133	P47/IRQ15-DS/ AN007	FL_RST	O		L	L	L	FL display control pin
134	P46/IRQ14-DS/ AN006	DIR_CE	O		L	L	L	DIR (PCM9211) control pin
135	P45/IRQ13-DS/ AN005	DIR_CLK	O		L	L	L	DIR (PCM9211) control pin
136	P44/IRQ12-DS/ AN004	DAC_DET	I	M3VPu (TI)	I	I	I	DAC identification input (TI:"H", AKM:"L")
137	P43/IRQ11-DS/ AN003	SW_HAINT	I	CEC3VPu	I	I	I	HDMI Rx (MN864788) audio interrupt signal detpin
138	P42/IRQ10-DS/ AN002	CPU_POWER	O		L	L	L	CPU power supply control pin
139	P41/IRQ9-DS/ AN001	MAIN_POWER	O	Pd	L	L	L	Power supply control pin
140	VREFL0	VREFL0	-		-	-	-	Ground pin
141	P40/IRQ8-DS/ AN000	TX_TEMP	I	-	I	I	I	Temperature detection for HDMI Tx (MN864807) (A/D converter)
142	VREFH0	VREFH0	-		-	-	-	Power supply pin
143	AVCC0	AVCC0	-		-	-	-	Power supply pin
144	P07/IRQ15	CEC_OUT	O	Pd	L	L	-	CEC-D control pin

ADV7623 (DIGITAL_OSD : IC731)



Pin Function Descriptions

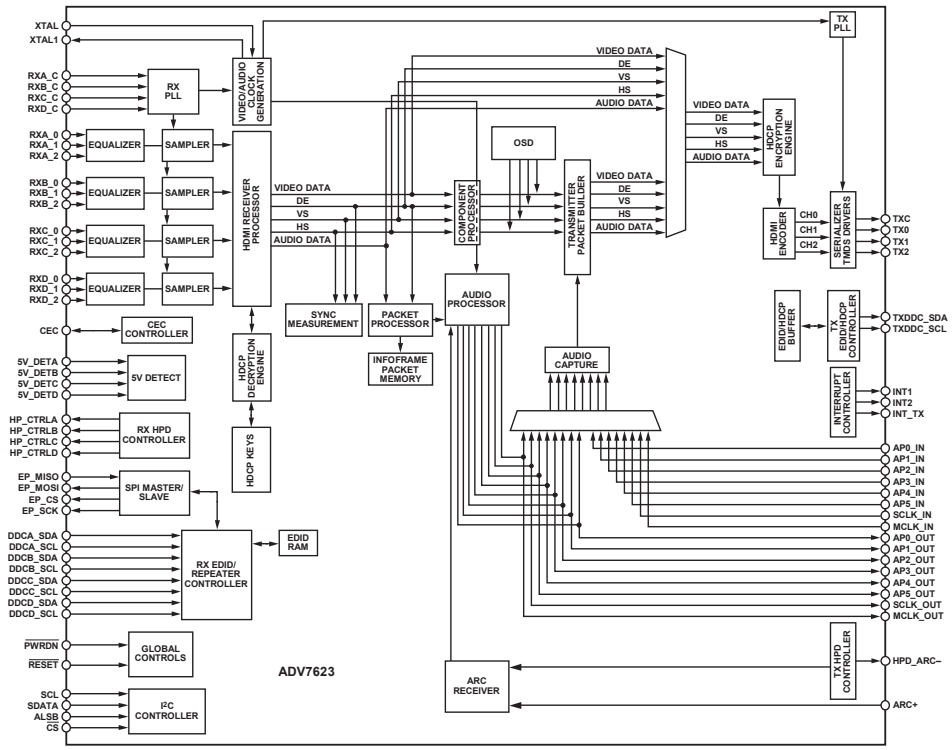
Pin No.	Mnemonic	Type	Description
1	DDCC_SCL	Digital input	HDCP Slave Serial Clock Port C. DDCC_SCL is a 3.3 V input that is 5 V tolerant.
2	CVDD	Power	Receiver Comparator Supply Voltage (1.8 V).
3	CGND	Ground	TVDD and CVDD Ground.
4	RXC_C–	HDMI input	Digital Input Clock Complement of Port C in the HDMI Interface.
5	RXC_C+	HDMI input	Digital Input Clock True of Port C in the HDMI Interface.
6	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
7	RXC_0–	HDMI input	Digital Input Channel 0 Complement of Port C in the HDMI Interface.
8	RXC_0+	HDMI input	Digital Input Channel 0 True of Port C in the HDMI Interface.
9	CGND	Ground	TVDD and CVDD Ground.
10	RXC_1–	HDMI input	Digital Input Channel 1 Complement of Port C in the HDMI Interface.
11	RXC_1+	HDMI input	Digital Input Channel 1 True of Port C in the HDMI Interface.
12	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).

Pin No.	Mnemonic	Type	Description
13	RXC_2–	HDMI input	Digital Input Channel 2 Complement of Port C in the HDMI Interface.
14	RXC_2+	HDMI input	Digital Input Channel 2 True of Port C in the HDMI Interface.
15	HP_CTRLD	Digital output	Hot Plug Detect for Port D.
16	5V_DETD	Digital input	5 V Detect Pin for Port D in the HDMI Interface.
17	DGND	Ground	DVDD Ground.
18	DVDD	Power	Digital Supply Voltage (1.8 V).
19	DDCD_SDA	Digital I/O	HDCP Slave Serial Data Port D. DDCD_SDA is a 3.3 V input/output that is 5 V tolerant.
20	DDCD_SCL	Digital input	HDCP Slave Serial Clock Port D. DDCD_SCL is a 3.3 V input that is 5 V tolerant.
21	CVDD	Power	Receiver Comparator Supply Voltage (1.8 V).
22	CGND	Ground	TVDD and CVDD Ground.
23	RXD_C–	HDMI input	Digital Input Clock Complement of Port D in the HDMI Interface.
24	RXD_C+	HDMI input	Digital Input Clock True of Port D in the HDMI Interface.
25	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
26	RXD_0–	HDMI input	Digital Input Channel 0 Complement of Port D in the HDMI Interface.
27	RXD_0+	HDMI input	Digital Input Channel 0 True of Port D in the HDMI Interface.
28	CGND	Ground	TVDD and CVDD Ground.
29	RXD_1–	HDMI input	Digital Input Channel 1 Complement of Port D in the HDMI Interface.
30	RXD_1+	HDMI input	Digital Input Channel 1 True of Port D in the HDMI Interface.
31	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
32	RXD_2–	HDMI input	Digital Input Channel 2 Complement of Port D in the HDMI Interface.
33	RXD_2+	HDMI input	Digital Input Channel 2 True of Port D in the HDMI Interface.
34	CVDD	Power	Receiver Comparator Supply Voltage (1.8 V).
35	CGND	Ground	TVDD and CVDD Ground.
36	TXPVDD	Power	1.8 V Power Supply for Digital and I/O Power Supply. This pin supplies power to the digital logic and I/Os. It should be filtered and as quiet as possible.
37	TXPLVDD	Power	1.8 V Power Supply.
38	TXGND	Ground	TXPVDD Ground.
39	TXPGND	Ground	TXPLVDD Ground.
40	EXT_SWING	Analog input	This pin sets the internal reference currents. Place an 887 Ω resistor (1% tolerance) between this pin and ground.
41	HPD_ARC–	Analog input	Hot Plug Detect Signal. This pin indicates to the interface whether the receiver is connected. It supports 1.8 V to 5 V CMOS logic levels.
42	ARC+	Analog input	Audio Return Channel Input (5 V Tolerant).
43	TXDDC_SDA	Digital I/O	Serial Port Data I/O to Receiver. This pin serves as the master to the DDC bus. It supports a 5 V CMOS logic level.
44	TXDDC_SCL	Digital output	Serial Port Data Clock to Receiver. This pin serves as the master clock for the DDC bus. It supports a 5 V CMOS logic level.
45	TXAVDD	Power	1.8 V Power Supply for TMDS Outputs.
46	TXGND	Ground	TXAVDD Ground.
47	TXC–	HDMI output	Differential Clock Output. Differential clock output at the TMDS clock rate; supports TMDS logic level.
48	TXC+	HDMI output	Differential Clock Output. Differential clock output at the TMDS clock rate; supports TMDS logic level.
49	TXGND	Ground	TXAVDD Ground.
50	TX0–	HDMI output	Differential Output Channel 0 Complement. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
51	TX0+	HDMI output	Differential Output Channel 0 True. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
52	TXGND	Ground	TXAVDD Ground.
53	TX1–	HDMI output	Differential Output Channel 1 Complement. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
54	TX1+	HDMI output	Differential Output Channel 1 True. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
55	TXAVDD	Power	1.8 V Power Supply for TMDS Outputs.

Pin No.	Mnemonic	Type	Description
13	RXC_2–	HDMI input	Digital Input Channel 2 Complement of Port C in the HDMI Interface.
14	RXC_2+	HDMI input	Digital Input Channel 2 True of Port C in the HDMI Interface.
15	HP_CTRLD	Digital output	Hot Plug Detect for Port D.
16	5V_DETD	Digital input	5 V Detect Pin for Port D in the HDMI Interface.
17	DGND	Ground	DVDD Ground.
18	DVDD	Power	Digital Supply Voltage (1.8 V).
19	DDCD_SDA	Digital I/O	HDCP Slave Serial Data Port D. DDCD_SDA is a 3.3 V input/output that is 5 V tolerant.
20	DDCD_SCL	Digital input	HDCP Slave Serial Clock Port D. DDCD_SCL is a 3.3 V input that is 5 V tolerant.
21	CVDD	Power	Receiver Comparator Supply Voltage (1.8 V).
22	CGND	Ground	TVDD and CVDD Ground.
23	RXD_C–	HDMI input	Digital Input Clock Complement of Port D in the HDMI Interface.
24	RXD_C+	HDMI input	Digital Input Clock True of Port D in the HDMI Interface.
25	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
26	RXD_0–	HDMI input	Digital Input Channel 0 Complement of Port D in the HDMI Interface.
27	RXD_0+	HDMI input	Digital Input Channel 0 True of Port D in the HDMI Interface.
28	CGND	Ground	TVDD and CVDD Ground.
29	RXD_1–	HDMI input	Digital Input Channel 1 Complement of Port D in the HDMI Interface.
30	RXD_1+	HDMI input	Digital Input Channel 1 True of Port D in the HDMI Interface.
31	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
32	RXD_2–	HDMI input	Digital Input Channel 2 Complement of Port D in the HDMI Interface.
33	RXD_2+	HDMI input	Digital Input Channel 2 True of Port D in the HDMI Interface.
34	CVDD	Power	Receiver Comparator Supply Voltage (1.8 V).
35	CGND	Ground	TVDD and CVDD Ground.
36	TXPVDD	Power	1.8 V Power Supply for Digital and I/O Power Supply. This pin supplies power to the digital logic and I/Os. It should be filtered and as quiet as possible.
37	TXPLVDD	Power	1.8 V Power Supply.
38	TXGND	Ground	TXPVDD Ground.
39	TXPGND	Ground	TXPLVDD Ground.
40	EXT_SWING	Analog input	This pin sets the internal reference currents. Place an 887 Ω resistor (1% tolerance) between this pin and ground.
41	HPD_ARC–	Analog input	Hot Plug Detect Signal. This pin indicates to the interface whether the receiver is connected. It supports 1.8 V to 5 V CMOS logic levels.
42	ARC+	Analog input	Audio Return Channel Input (5 V Tolerant).
43	TXDDC_SDA	Digital I/O	Serial Port Data I/O to Receiver. This pin serves as the master to the DDC bus. It supports a 5 V CMOS logic level.
44	TXDDC_SCL	Digital output	Serial Port Data Clock to Receiver. This pin serves as the master clock for the DDC bus. It supports a 5 V CMOS logic level.
45	TXAVDD	Power	1.8 V Power Supply for TMDS Outputs.
46	TXGND	Ground	TXAVDD Ground.
47	TXC–	HDMI output	Differential Clock Output. Differential clock output at the TMDS clock rate; supports TMDS logic level.
48	TXC+	HDMI output	Differential Clock Output. Differential clock output at the TMDS clock rate; supports TMDS logic level.
49	TXGND	Ground	TXAVDD Ground.
50	TX0–	HDMI output	Differential Output Channel 0 Complement. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
51	TX0+	HDMI output	Differential Output Channel 0 True. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
52	TXGND	Ground	TXAVDD Ground.
53	TX1–	HDMI output	Differential Output Channel 1 Complement. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
54	TX1+	HDMI output	Differential Output Channel 1 True. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
55	TXAVDD	Power	1.8 V Power Supply for TMDS Outputs.

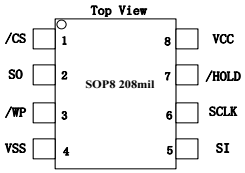
Pin No.	Mnemonic	Type	Description
99	PGND	Ground	PVDD Ground.
100	PVDD	Power	PLL Supply Voltage (1.8 V).
101	XTAL	Miscellaneous analog	Input pin for 28.63636 MHz crystal or an external 1.8 V 28.63636 MHz clock oscillator source to clock the ADV7623.
102	XTAL1	Miscellaneous analog	Crystal Output Pin. This pin should be left floating if a clock oscillator is used.
103	PVDD	Power	PLL Supply Voltage (1.8 V).
104	PGND	Ground	PVDD Ground.
105	HP_CTRLA	Digital output	Hot Plug Detect for Port A.
106	5V_DETA	Digital input	5 V Detect Pin for Port A in the HDMI Interface.
107	RTERM	Miscellaneous analog	This pin sets the internal termination resistance. A 500 Ω resistor between this pin and ground should be used.
108	DDCA_SDA	Digital I/O	HDCP Slave Serial Data Port A. DDCA_SDA is a 3.3 V input/output that is 5 V tolerant.
109	DDCA_SCL	Digital input	HDCP Slave Serial Clock Port A. DDCA_SCL is a 3.3 V input that is 5 V tolerant.
110	CVDD	Power	Receiver Comparator Supply Voltage (1.8 V).
111	CGND	Ground	TVDD and CVDD Ground.
112	RXA_C–	HDMI input	Digital Input Clock Complement of Port A in the HDMI Interface.
113	RXA_C+	HDMI input	Digital Input Clock True of Port A in the HDMI Interface.
114	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
115	RXA_0–	HDMI input	Digital Input Channel 0 Complement of Port A in the HDMI Interface.
116	RXA_0+	HDMI input	Digital Input Channel 0 True of Port A in the HDMI Interface.
117	CGND	Ground	TVDD and CVDD Ground.
118	RXA_1–	HDMI input	Digital Input Channel 1 Complement of Port A in the HDMI Interface.
119	RXA_1+	HDMI input	Digital Input Channel 1 True of Port A in the HDMI Interface.
120	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
121	RXA_2–	HDMI input	Digital Input Channel 2 Complement of Port A in the HDMI Interface.
122	RXA_2+	HDMI input	Digital Input Channel 2 True of Port A in the HDMI Interface.
123	HP_CTRLB	Digital output	Hot Plug Detect for Port B.
124	5V_DETB	Digital input	5 V Detect Pin for Port B in the HDMI Interface.
125	DGND	Ground	DVDD Ground.
126	DVDD	Power	Digital Supply Voltage (1.8 V).
127	DDCB_SDA	Digital I/O	HDCP Slave Serial Data Port B. DDCB_SDA is a 3.3 V input/output that is 5 V tolerant.
128	DDCB_SCL	Digital input	HDCP Slave Serial Clock Port B. DDCB_SCL is a 3.3 V input that is 5 V tolerant.
129	CVDD	Power	Receiver Comparator Supply Voltage (1.8 V).
130	CGND	Ground	TVDD and CVDD Ground.
131	RXB_C–	HDMI input	Digital Input Clock Complement of Port B in the HDMI Interface.
132	RXB_C+	HDMI input	Digital Input Clock True of Port B in the HDMI Interface.
133	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
134	RXB_0–	HDMI input	Digital Input Channel 0 Complement of Port B in the HDMI Interface.
135	RXB_0+	HDMI input	Digital Input Channel 0 True of Port B in the HDMI Interface.
136	CGND	Ground	TVDD and CVDD Ground.
137	RXB_1–	HDMI input	Digital Input Channel 1 Complement of Port B in the HDMI Interface.
138	RXB_1+	HDMI input	Digital Input Channel 1 True of Port B in the HDMI Interface.
139	TVDD	Power	Receiver Terminator Supply Voltage (3.3 V).
140	RXB_2–	HDMI input	Digital Input Channel 2 Complement of Port B in the HDMI Interface.
141	RXB_2+	HDMI input	Digital Input Channel 2 True of Port B in the HDMI Interface.
142	HP_CTRLC	Digital output	Hot Plug Detect for Port C.
143	5V_DETC	Digital input	5 V Detect Pin for Port C in the HDMI Interface.
144	DDCC_SDA	Digital I/O	HDCP Slave Serial Data Port C. DDCC_SDA is a 3.3 V input/output that is 5 V tolerant.

ADV7623 Block diagram



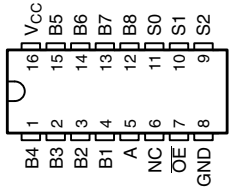
DIGITAL_OSD : IC732

BY25Q32BSSIG (except : E2)
BY25Q64ASSIG (only E2)

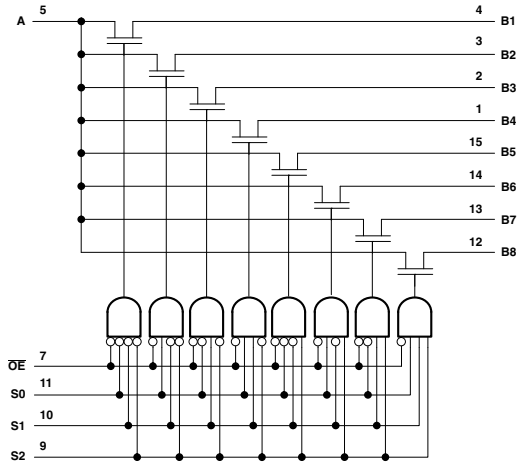


Pin Name	I/O	Description
/CS	I	Chip Select
SO (IO1)	I/O	Serial Output for single bit data Instructions. IO1 for Dual or Quad Instructions.
/WP (IO2)	I/O	Write Protect in single bit or Dual data Instructions. IO2 in Quad mode. The signal has an internal pull-up resistor and may be left unconnected in the host system if not used for Quad Instructions.
VSS		Ground
SI (IO0)	I/O	Serial Input for single bit data Instructions. IO0 for Dual or Quad Instructions.
SCLK	I	Serial Clock
/HOLD (IO3)	I/O	Hold (pause) serial transfer in single bit or Dual data Instructions. IO3 in Quad-I/O mode. The signal has an internal pull-up resistor and may be left unconnected in the host system if not used for Quad Instructions.
VCC		Core and I/O Power Supply

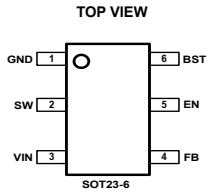
SN74CBT3251PWR (DIGITAL_HDMI_RX : IC712)



Block diagram



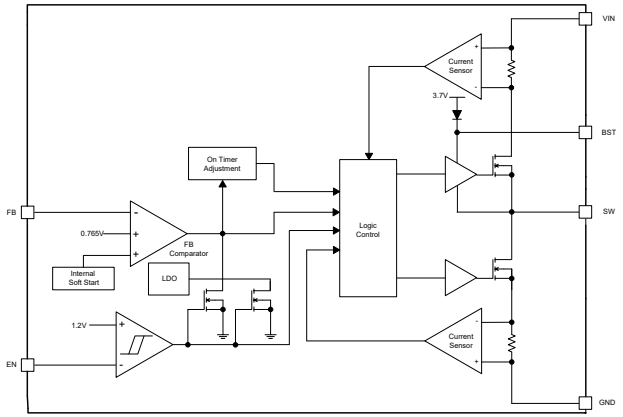
JW5061TF/JW5061TC (DIGITAL_SUPPLY : IC741, IC742, IC743, IC744, IC747, IC748)



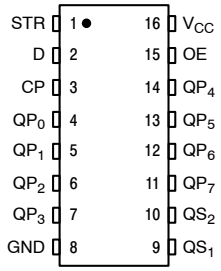
Terminal Functions

SOT23-6	Name	DESCRIPTION
1	GND	Ground pin.
2	SW	SW is the switching node that supplies power to the output. Connect the output LC filter from SW to the output load.
3	VIN	Input voltage pin. VIN supplies power to the IC. Connect a 4.5V to 18V supply to VIN and bypass VIN to GND with a suitably large capacitor to eliminate noise on the input to the IC.
4	FB	Output feedback pin. FB senses the output voltage and is regulated by the control loop to 0.765V. Connect a resistive divider at FB.
5	EN	Drive EN pin high to turn on the regulator and low to turn off the regulator.
6	BST	Connect a 0.1 μ F capacitor between BST and SW pin to supply current for the top switch driver.

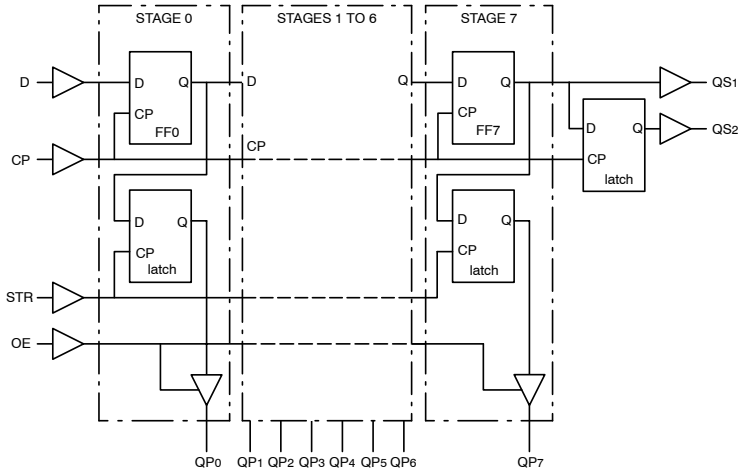
Block diagram



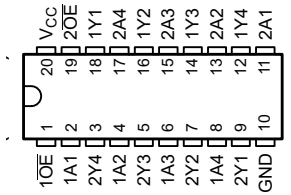
MC74HC4094ADR2G (DIGITAL_MCU : IC752, IC753)



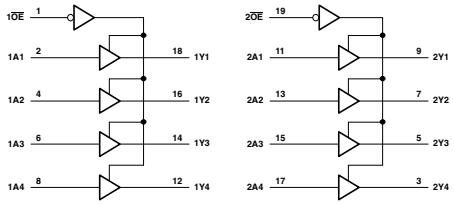
Logic Diagram



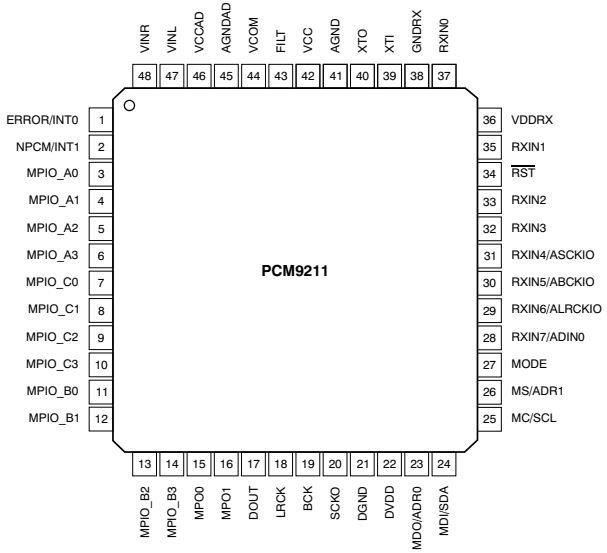
SN74LVC244APWR (DIGITAL_OSD : IC734) (DIGITAL_PLD : IC772) (DIGITAL_DSP : IC783) (DIGITAL_HDMI_TX : IC722, IC726)



Block diagram



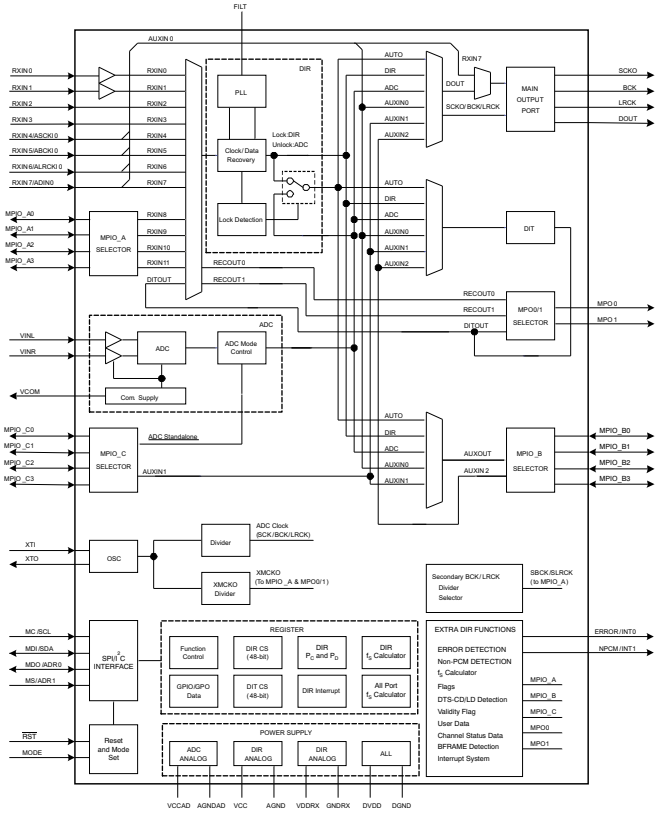
PCM9211PTR (DIGITAL_DIR : IC761)



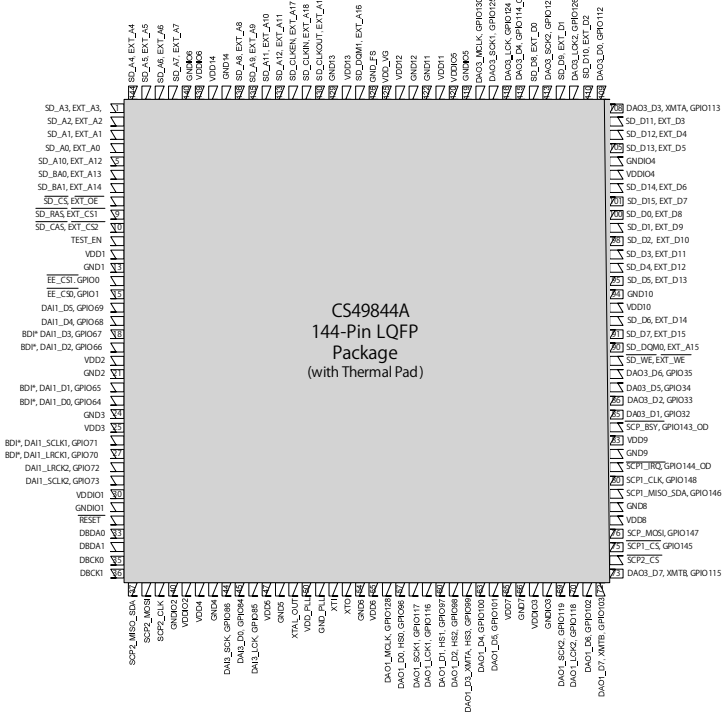
PIN Functions

PIN				DESCRIPTION
NO.	NAME	I/O	5-V TOLERANT	
1	ERROR/INT0	O	No	DIR Error detection output / Interrupt0 output
2	NPCM/INT1	O	No	DIR Non-PCM detection output / Interrupt1 output
3	MPIO_A0	I/O	Yes	Multipurpose I/O, Group A(1)
4	MPIO_A1	I/O	Yes	Multipurpose I/O, Group A(1)
5	MPIO_A2	I/O	Yes	Multipurpose I/O, Group A(1)
6	MPIO_A3	I/O	Yes	Multipurpose I/O, Group A(1)
7	MPIO_C0	I/O	Yes	Multipurpose I/O, Group C(1)
8	MPIO_C1	I/O	Yes	Multipurpose I/O, Group C(1)
9	MPIO_C2	I/O	Yes	Multipurpose I/O, Group C(1)
10	MPIO_C3	I/O	Yes	Multipurpose I/O, Group C(1)
11	MPIO_B0	I/O	Yes	Multipurpose I/O, Group B(1)
12	MPIO_B1	I/O	Yes	Multipurpose I/O, Group B(1)
13	MPIO_B2	I/O	Yes	Multipurpose I/O, Group B(1)
14	MPIO_B3	I/O	Yes	Multipurpose I/O, Group B(1)
15	MPO0	O	No	Multipurpose output 0
16	MPO1	O	No	Multipurpose output 1
17	DOUT	O	No	Main output port, serial digital audio data output
18	LRCK	O	No	Main output port, LR clock output
19	BCK	O	No	Main output port, Bit clock output
20	SCKO	O	No	Main output port, System clock output
21	DGND	–	–	Ground, for digital
22	DVDD	–	–	Power supply, 3.3 V (typ.), for digital
23	MDO/ADR0	I/O	Yes	Software control I/F, SPI data output / I2C slave address setting0(2)
24	MDI/SDA	I/O	Yes	Software control I/F, SPI data input / I2C data input/output(2) (3)
25	MC/SCL	I	Yes	Software control I/F, SPI clock input / I2C clock input(2)
26	MS/ADR1	I	Yes	Software control I/F, SPI chip select / I2C slave address setting1(2)
27	MODE	I	No	Control mode setting, (see the Serial Control Mode section, Control Mode Pin Setting)
28	RXIN7/ADIN0	I	Yes	Biphase signal, input 7 / AUXIN0, serial audio data input(2)
29	RXIN6/ALRCKI0	I	Yes	Biphase signal, input 6 / AUXIN0, LR clock input(2)
30	RXIN5/ABCKI0	I	Yes	Biphase signal, input 5 / AUXIN0, bit clock input(2)
31	RXIN4/ASCKI0	I	Yes	Biphase signal, input 4 / AUXIN0, system clock input(2)
32	RXIN3	I	Yes	Biphase signal, input 3(2)
33	RXIN2	I	Yes	Biphase signal, input 2(2)
34	RST	I	Yes	Reset Input, active low(2) (4)
35	RXIN1	I	Yes	Biphase signal, input 1, built-in coaxial amplifier
36	VDDRX	–	–	Power supply, 3.3 V (typ.), for RXIN0 and RXIN1.
37	RXIN0	I	Yes	Biphase signal, input 0, built-in coaxial amplifier
38	GNDRX	-	-	Ground, for RXIN
39	XTI	I	No	Oscillation circuit input for crystal resonator or external XTI clock source input(5)
40	XTO	O	No	Oscillation circuit output for crystal resonator
41	AGND	–	–	Ground, for PLL analog
42	VCC	–	–	Power supply, 3.3 V (typ.), for PLL analog
43	FILT	O	No	External PLL loop filter connection terminal; must connect recommended filter
44	VCOM	O	No	ADC common voltage output; must connect external decoupling capacitor
45	AGNDAD	–	–	Ground, for ADC analog
46	VCCAD	–	–	Power supply, 5.0 V (typ.), for ADC analog
47	VINL	I	No	ADC analog voltage input, left channel
48	VINR	I	No	ADC analog voltage input, right channel

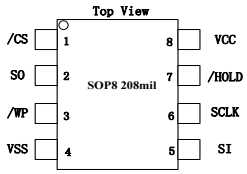
(1) Schmitt trigger input
(2) Schmitt trigger input
(3) Open-drain configuration in I2C mode
(4) Onboard pull-down resistor (50 k Ω , typical)
(5) CMOS Schmitt trigger input



CS49844A-CQZ (DIGITAL_DSP : IC781)

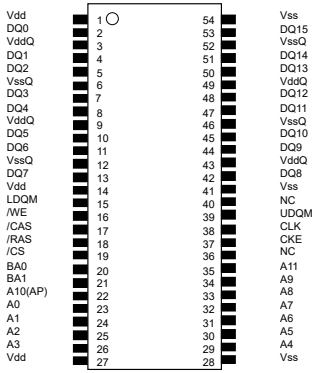


BY25Q64ASSIG (DIGITAL_DSP : IC782)



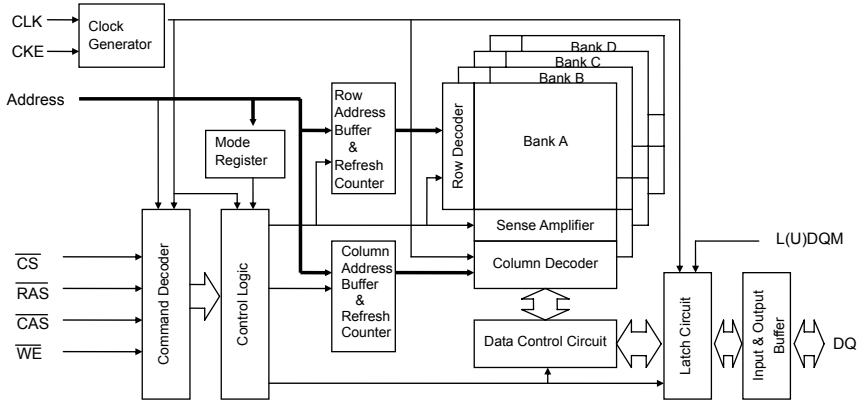
Pin Name	I/O	Description
/CS	I	Chip Select
SO (IO1)	I/O	Serial Output for single bit data Instructions. IO1 for Dual or Quad Instructions.
/WP (IO2)	I/O	Write Protect in single bit or Dual data Instructions. IO2 in Quad mode. The signal has an internal pull-up resistor and may be left unconnected in the host system if not used for Quad Instructions.
VSS		Ground
SI (IO0)	I/O	Serial Input for single bit data Instructions. IO0 for Dual or Quad Instructions.
SCLK	I	Serial Clock
/HOLD (IO3)	I/O	Hold (pause) serial transfer in single bit or Dual data Instructions. IO3 in Quad-I/O mode. The signal has an internal pull-up resistor and may be left unconnected in the host system if not used for Quad Instructions.
VCC		Core and I/O Power Supply

M12L128168A-5TG2S (DIGITAL_DSP : IC784)

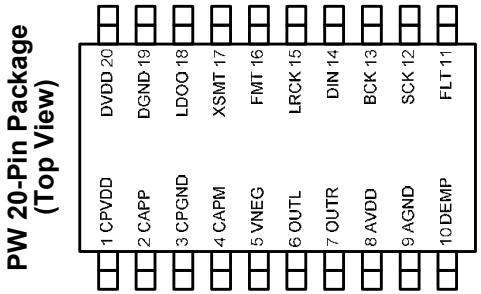


CLK	: Master Clock	U,LDQM	: Output Disable / Write Mask
CKE	: Clock Enable	A0-11	: Address Input
/CS	: Chip Select	BA0,1	: Bank Address
/RAS	: Row Address Strobe	Vdd	: Power Supply
/CAS	: Column Address Strobe	VddQ	: Power Supply for Output
/WE	: Write Enable	Vss	: Ground
DQ0-15	: Data I/O	VssQ	: Ground for Output

Block diagram



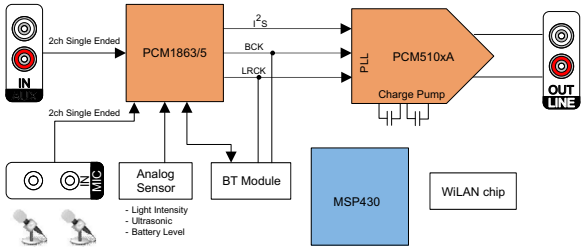
PCM5102APWR (DIGITAL_MAIN DAC : IC795, IC790, IC791, IC797)



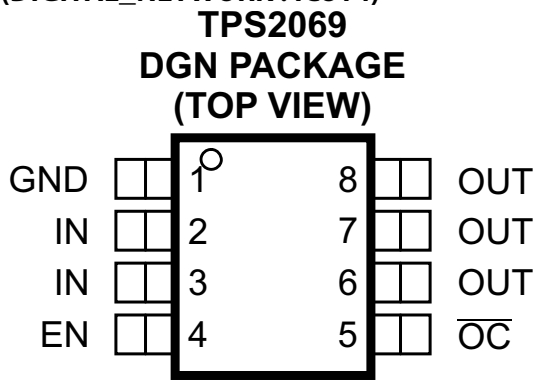
Pin Function

PIN		TYPE	DESCRIPTION
NAME	NO.		
AGND	9	—	Analog ground
AVDD	8	P	Analog power supply, 3.3 V
BCK	13	I	Audio data bit clock input(1)
CAPM	4	O	Charge pump flying capacitor terminal for negative rail
CAPP	2	O	Charge pump flying capacitor terminal for positive rail
CPGND	3	—	Charge pump ground
CPVDD	1	P	Charge pump power supply, 3.3 V
DEMP	10	I	De-emphasis control for 44.1-kHz sampling rate(1): Off (Low) / On (High)
DGND	19	—	Digital ground
DIN	14	I	Audio data input(1)
DVDD	20	P	Digital power supply, 1.8 V or 3.3 V
FLT	11	I	Filter select : Normal latency (Low) / Low latency (High)
FMT	16	I	Audio format selection : I2S (Low) / Left-justified (High)
LDOO	18	P	Internal logic supply rail terminal for decoupling, or external 1.8 V supply terminal
LRCK	15	I	Audio data word clock input(1)
OUTL	6	O	Analog output from DAC left channel
OUTR	7	O	Analog output from DAC right channel
SCK	12	I	System clock input(1)
VNEG	5	O	Negative charge pump rail terminal for decoupling, –3.3 V
XSMT	17	I	Soft mute control(1): Soft mute (Low) / soft un-mute (High)

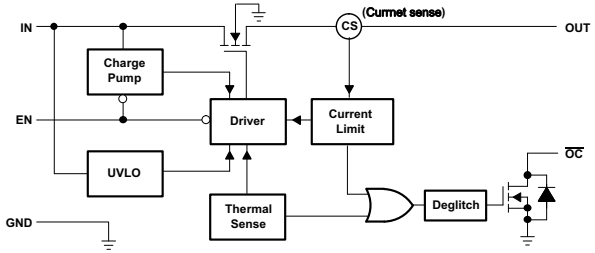
FUNCTIONAL BLOCK DIAGRAM



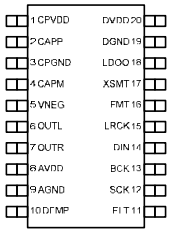
TPS2069CDGNR (DIGITAL_NETWORK : IC814)



Block diagram



PCM5100APWR (DIGITAL_DIR : IC760, IC765)

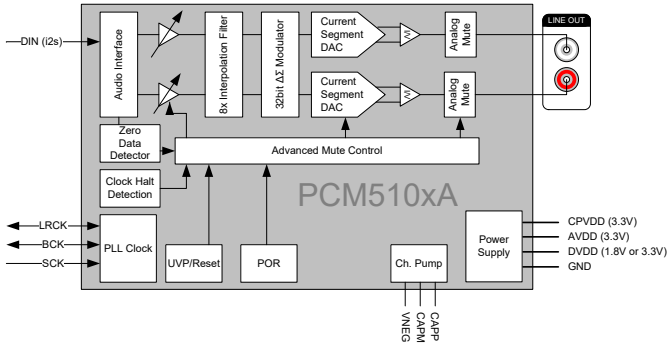


Pin Functions

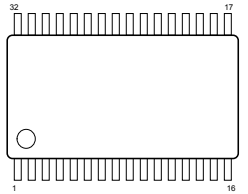
PIN		TYPE	DESCRIPTION
NAME	NO.		
AGND	9	—	Analog ground
AVDD	8	P	Analog power supply, 3.3 V
BCK	13	I	Audio data bit clock input(1)
CAPM	4	O	Charge pump flying capacitor terminal for negative rail
CAPP	2	O	Charge pump flying capacitor terminal for positive rail
CPGND	3	—	Charge pump ground
CPVDD	1	P	Charge pump power supply, 3.3 V
DEMP	10	I	De-emphasis control for 44.1-kHz sampling rate(1): Off (Low) / On (High)
DGND	19	—	Digital ground
DIN	14	I	Audio data input(1)
DVDD	20	P	Digital power supply, 1.8 V or 3.3 V
FLT	11	I	Filter select : Normal latency (Low) / Low latency (High)
FMT	16	I	Audio format selection : I^2S (Low) / Left-justified (High)
LDOO	18	P	Internal logic supply rail terminal for decoupling, or external 1.8 V supply terminal
LRCK	15	I	Audio data word clock input(1)
OUTL	6	O	Analog output from DAC left channel
OUTR	7	O	Analog output from DAC right channel
SCK	12	I	System clock input(1)
VNEG	5	O	Negative charge pump rail terminal for decoupling, –3.3 V
XSMT	17	I	Soft mute control(1): Soft mute (Low) / soft un-mute (High)

(1) Failsafe LVCMOS Schmitt trigger input

Block diagram

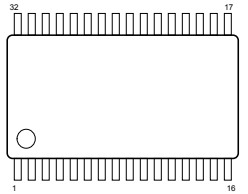


NJU72343 (DIGITAL_ANALOG : IC822)



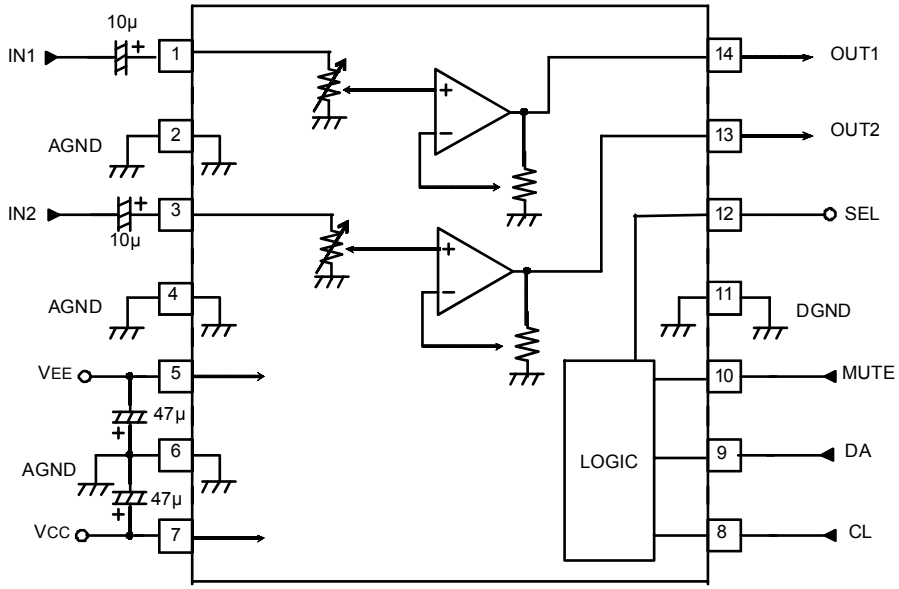
No.	Symbol	Function	No.	Symbol	Function
1	AREF	Analog reference potential	17	DATA	IC control data input
2	ADR	Address selection	18	CLOCK	IC control clock input
3	InA2	Ach input2	19	VDDOUT	Digital power supply output
4	InB2	Bch input2	20	AREF	Analog reference potential
5	InA1	Ach input1	21	OutH	Hch output
6	InB1	Bch input1	22	OutG	Gch output
7	InC	Cch input	23	OutF	Fch output
8	InD	Dch input	24	OutE	Ech output
9	InE	Ech input	25	OutD	Dch output
10	InF	Fch input	26	OutC	Cch output
11	InG1	Gch input1	27	OutB	Bch output
12	InH1	Hch input1	28	OutA	Ach output
13	InG2	Cch input2	29	AREF	Analog reference potential
14	InH2	Dch input2	30	V-	Power supply(-)
15	MUTE	External mute control	31	AREF	Analog reference potential
16	REF	Digital reference potential	32	V+	Power supply(+)

NJU72750A (DIGITAL_ANALOG : IC821, IC825)

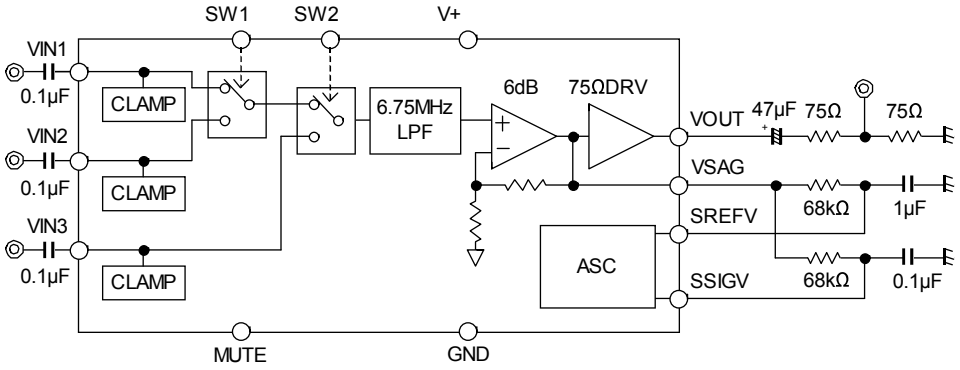


No.	Symbol	Function	No.	Symbol	Function
1	V+	Power supply(+)	17	DATA	IC control data input
2	InA1	Ach input1	18	CLOCK	IC control clock input
3	InB1	Bch input1	19	NC	-
4	InA2	Ach input2	20	NC	-
5	InB2	Bch input2	21	OutB3	Bch output3
6	InA3	Ach input3	22	OutA3	Ach output3
7	InB3	Bch input3	23	REF_B	Bch reference potential
8	InA4	Ach input4	24	OutB2	Bch output2
9	InB4	Bch input4	25	OutA2	Ach output2
10	InA5	Ach input5	26	REF_A	Ach reference potential
11	InB5	Bch input5	27	OutB1	Bch output1
12	InA6	Ach input6	28	OutA1	Ach output1
13	InB6	Bch input6	29	NC	-
14	InA7	Ach input7	30	ADR0	Address selection pin 0
15	InB7	Bch input7	31	ADR1	Address selection pin 1
16	REF	BIAS reference potential	32	V-	Power supply(-)

BD3812F (DIGITAL_ANALOG : IC911 X1700 E3 only)



NJM41050V (DIGITAL_ANALOG : IC881)



TOP268VG (SMPS : IC601)

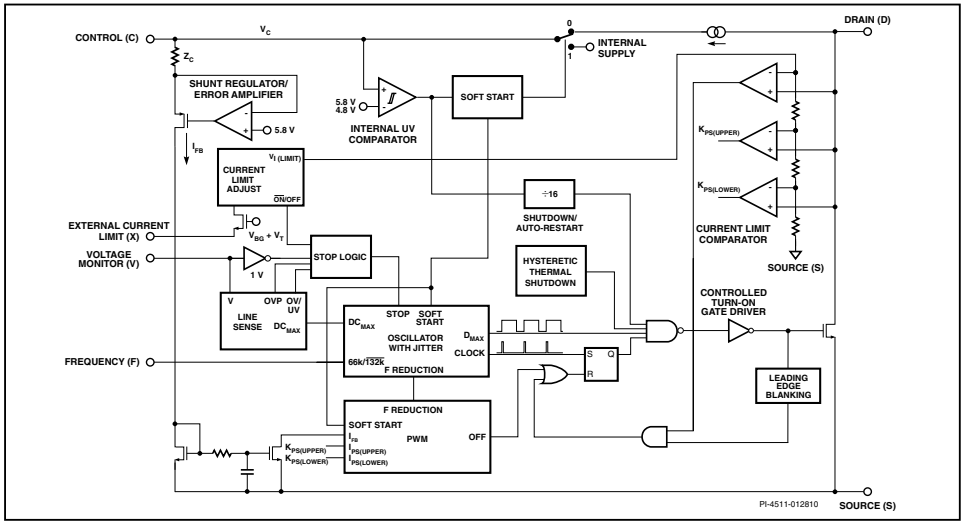


Figure 3. Functional Block Diagram.

Pin Functional Description

DRAIN (D) Pin:
High-voltage power MOSFET DRAIN pin. The internal start-up bias current is drawn from this pin through a switched high-voltage current source. Internal current limit sense point for drain current.

CONTROL (C) Pin:
Error amplifier and feedback current input pin for duty cycle control. Internal shunt regulator connection to provide internal bias current during normal operation. It is also used as the connection point for the supply bypass and auto-restart/ compensation capacitor.

EXTERNAL CURRENT LIMIT (X) Pin:
Input pin for external current limit adjustment remote-ON/OFF and device reset. A connection to SOURCE pin disables all functions on this pin. This pin should not be left floating.

VOLTAGE MONITOR (V) Pin:
Input for OV, UV, line feed-forward with DC_{MAX} reduction, output overvoltage protection (OVP), remote-ON/OFF. A connection to the SOURCE pin disables all functions on this pin. This pin should not be left floating.

FREQUENCY (F) Pin :
Input pin for selecting switching frequency 132 kHz if connected to SOURCE pin and 66 kHz if connected to CONTROL pin. This pin should not be left floating.

SOURCE (S) Pin:
Output MOSFET source connection for high-voltage power return. Primary-side control circuit common and reference point.

NO CONNECTION (NC) Pin:
Internally not connected, floating potential pin.

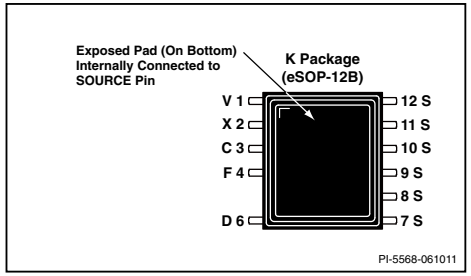
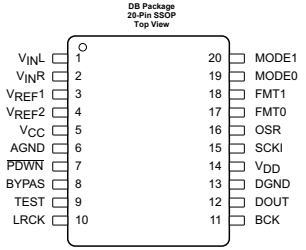


Figure 4. Pin Configuration (Top View).

PCM1803A(DIGITAL_DIR : IC764)

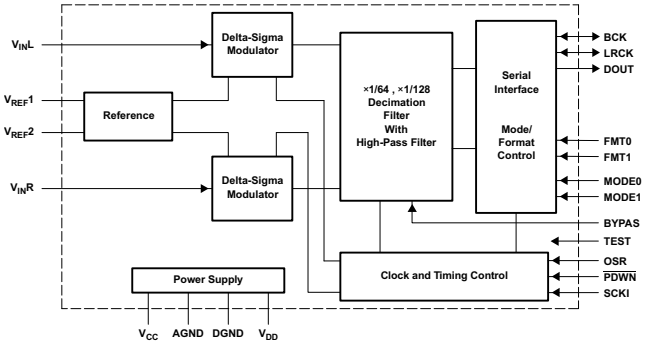


Pin Function

PIN		I/O	DESCRIPTION
NAME	NO.		
AGND	6	–	Analog GND
BCK	11	I/O	Audio data bit clock input/output(1)
BYPAS	8	I	HPF bypass control. LOW: Normal mode (DC reject); HIGH: Bypass mode (through)(2)
DGND	13	–	Digital GND
DOUT	12	O	Audio data digital output
FMT0	17	I	Audio data format select input 0. See Data Format.(2)
FMT1	18	I	Audio data format select input 1. See Data Format.(2)
LRCK	10	I/O	Audio data latch enable input/output(1)
MODE0	19	I	Mode select input 0. See Data Format.(2)
MODE1	20	I	Mode select input 1. See Data Format.(2)
OSR	16	I	Oversampling ratio select input. LOW: × 64 fS, HIGH: × 128 fS(2)
PDWN	7	I	Power-down control, active-low (2)
SCKI	15	I	System clock input: 256 fS, 384 fS, 512 fS, or 768 fS(3)
TEST	9	I	Test, must be connected to DGND(2)
VCC	5	–	Analog power supply, 5-V
VDD	14	–	Digital power supply, 3.3-V
VINL	1	I	Analog input, L-channel
VINR	2	I	Analog input, R-channel
VREF1	3	–	Reference-voltage-1 decoupling capacitor
VREF2	4	–	Reference-voltage-2 decoupling capacitor

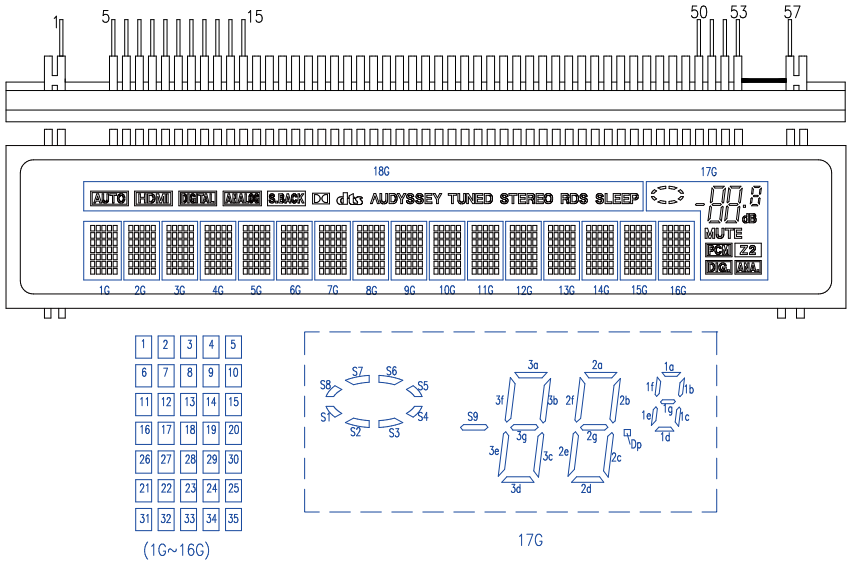
(1) Schmitt-trigger input
(2) Schmitt-trigger input with internal pulldown (50 kΩ, typically), 5-V tolerant
(3) Schmitt-trigger input, 5-V tolerant

FUNCTIONAL BLOCK DIAGRAM



2. FL DISPLAY

FLD (CIG25-1801N) (FRONT : FL101)



PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 - 49	50	51	52	53	54	55	56	57
CONNECTION	F1	NP	NP	NP	LGND	PGND	VH	VDD	OSC	RESET	CS	CP	DA	TSA	TSB	NX	18G	17G	Q17G	Q18G	NP	NP	NP	F2

NOTE

1) F1, F2 ----Filament
2) NP ------No pin
3) NX ------No extend pin
4) LGND ----Logic GND pin
5) PGND ----Power GND pin
6) VH ------High Voltage Supply pin
7) VDD ------Logic Voltage Supply pin
8) CP ----Shift Register Clock
9) DA ----Serial Data Input
10) TSA, B --Test pin
11) OSC ----Pin for self-oscillation
12) 17G, 18G ---Grid
13) Q17G, Q18G ---Driver Output Port.

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G	17G(AD3)	18G(AD4)
SEGA1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S9	-
SEGA2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3d	-
SEGA3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2d	-
SEGA4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3e	-
SEGA5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2e	-
SEGA6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3c	-
SEGA7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	2c	-
SEGA8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	3g	-
SEGA9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	2g	-
SEGA10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	3f	-
SEGA11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	2f	-
SEGA12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	3b	-
SEGA13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	2b	-
SEGA14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	3a	-
SEGA15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	2a	-
SEGA16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	Dp	-
SEGA17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	dB	-
SEGA18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	1d	-
SEGA19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	1e	-
SEGA20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	1c	-
SEGA21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	1g	-
SEGA22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	1f	-
SEGA23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	1b	-
SEGA24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	1a	AUTO
SEGA25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	S1	HDMI
SEGA26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	S2	DIGITAL
SEGA27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	S3	ANALOG
SEGA28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	S4	S.BACK
SEGA29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	S5	DOLBY
SEGA30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	S6	dts
SEGA31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	S7	AUDYSSEY
SEGA32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	S8	TUNED
SEGA33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	MUTE	STEREO
SEGA34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	PCM	RDS
SEGA35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	Z2	SLEEP
AD1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DIG.	-
AD2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANA.	-

FORMAT SHARP

FORMAT: SHARP /DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED /REMOTE ID: 1
SYSTEM ADDRESS (C1 ～ C5) : 0 1 0 0 0 , EXTENSION BIT (C12,C13) : 1 1

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0230**00**	0 0 0 0 0 0		RCSHP0230**16**	0 0 0 0 1 0	FR LEVEL DOWN
RCSHP0230**01**	1 0 0 0 0 0	POWER	RCSHP0230**17**	1 0 0 0 1 0	
RCSHP0230**02**	0 1 0 0 0 0	FL LEVEL UP	RCSHP0230**18**	0 1 0 0 1 0	
RCSHP0230**03**	1 1 0 0 0 0	PHONO	RCSHP0230**19**	1 1 0 0 1 0	
RCSHP0230**04**	0 0 1 0 0 0	CD	RCSHP0230**20**	0 0 1 0 1 0	
RCSHP0230**05**	1 0 1 0 0 0	TUNER	RCSHP0230**21**	1 0 1 0 1 0	
RCSHP0230**06**	0 1 1 0 0 0		RCSHP0230**22**	0 1 1 0 1 0	SR LEVEL UP
RCSHP0230**07**	1 1 1 0 0 0	FL LEVEL DOWN	RCSHP0230**23**	1 1 1 0 1 0	SR LEVEL DOWN
RCSHP0230**08**	0 0 0 1 0 0	CBL/SAT	RCSHP0230**24**	0 0 0 1 1 0	VIDEO SELECT
RCSHP0230**09**	1 0 0 1 0 0	TV AUDIO	RCSHP0230**25**	1 0 0 1 1 0	
RCSHP0230**10**	0 1 0 1 0 0	Blu-ray	RCSHP0230**26**	0 1 0 1 1 0	
RCSHP0230**11**	1 1 0 1 0 0	FR LEVEL UP	RCSHP0230**27**	1 1 0 1 1 0	
RCSHP0230**12**	0 0 1 1 0 0	AUX1	RCSHP0230**28**	0 0 1 1 1 0	INPUT MODE ANALOG
RCSHP0230**13**	1 0 1 1 0 0	GAME	RCSHP0230**29**	1 0 1 1 1 0	CURSOR RIGHT
RCSHP0230**14**	0 1 1 1 0 0	MEDIA PLAYER	RCSHP0230**30**	0 1 1 1 1 0	STATUS
RCSHP0230**15**	1 1 1 1 0 0		RCSHP0230**31**	1 1 1 1 1 0	INFO

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0230**32**	0 0 0 0 0 1	ENTER	RCSHP0230**48**	0 0 0 0 1 1	MUTING
RCSHP0230**33**	1 0 0 0 0 1	POWER ON	RCSHP0230**49**	1 0 0 0 1 1	MASTER VOLUME UP
RCSHP0230**34**	0 1 0 0 0 1	POWER OFF	RCSHP0230**50**	0 1 0 0 1 1	MASTER VOLUME DOWN
RCSHP0230**35**	1 1 0 0 0 1	DVD	RCSHP0230**51**	1 1 0 0 1 1	SL LEVEL UP
RCSHP0230**36**	0 0 1 0 0 1	STANDARD (DOLBY/DTS SURR.)	RCSHP0230**52**	0 0 1 0 1 1	SL LEVEL DOWN
RCSHP0230**37**	1 0 1 0 0 1	SW LEVEL DOWN	RCSHP0230**53**	1 0 1 0 1 1	CENTER LEVEL UP
RCSHP0230**38**	0 1 1 0 0 1	DSP SIMULATION	RCSHP0230**54**	0 1 1 0 1 1	CENTER LEVEL DOWN
RCSHP0230**39**	1 1 1 0 0 1	SB/SBL LEVEL UP	RCSHP0230**55**	1 1 1 0 1 1	SBR LEVEL UP
RCSHP0230**40**	0 0 0 1 0 1		RCSHP0230**56**	0 0 0 1 1 1	SBR LEVEL DOWN
RCSHP0230**41**	1 0 0 1 0 1		RCSHP0230**57**	1 0 0 1 1 1	TONE CONTROL OFF
RCSHP0230**42**	0 1 0 1 0 1		RCSHP0230**58**	0 1 0 1 1 1	TONE CONTROL ON
RCSHP0230**43**	1 1 0 1 0 1	SB/SBL LEVEL DOWN	RCSHP0230**59**	1 1 0 1 1 1	
RCSHP0230**44**	0 0 1 1 0 1	SW LEVEL UP	RCSHP0230**60**	0 0 1 1 1 1	
RCSHP0230**45**	1 0 1 1 0 1	FRONT SPEAKER ※ X1700H only	RCSHP0230**61**	1 0 1 1 1 1	
RCSHP0230**46**	0 1 1 1 0 1	SP-A ,FRONT ※ X1700H only	RCSHP0230**62**	0 1 1 1 1 1	
RCSHP0230**47**	1 1 1 1 0 1	SP-B ,FRONT ※ X1700H only	RCSHP0230**63**	1 1 1 1 1 1	

FORMAT: SHARP /DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED /REMOTE ID: 1
SYSTEM ADDRESS (C1 ～ C5) : 0 0 1 1 0 , EXTENSION BIT (C12,C13) : 0 1

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0C200**00**	0 0 0 0 0 0	ALL BASS DOWN	RCSHP0C200**16**	0 0 0 0 1 0	ZONE2 CD
RCSHP0C200**01**	1 0 0 0 0 0		RCSHP0C200**17**	1 0 0 0 1 0	ZONE2 TUNER
RCSHP0C200**02**	0 1 0 0 0 0	SURROUND BACK	RCSHP0C200**18**	0 1 0 0 1 0	ZONE2 Blu-ray
RCSHP0C200**03**	1 1 0 0 0 0	MASTER VOL. PRESET1 (0dB)	RCSHP0C200**19**	1 1 0 0 1 0	ZONE2 AUX1
RCSHP0C200**04**	0 0 1 0 0 0		RCSHP0C200**20**	0 0 1 0 1 0	ZONE2 GAME
RCSHP0C200**05**	1 0 1 0 0 0	MASTER VOL. PRESET2 (-20dB)	RCSHP0C200**21**	1 0 1 0 1 0	
RCSHP0C200**06**	0 1 1 0 0 0	MASTER VOL. PRESET3 (-40dB)	RCSHP0C200**22**	0 1 1 0 1 0	ZONE2 PRESET UP
RCSHP0C200**07**	1 1 1 0 0 0	ZONE2 VOL. P1 (0dB)	RCSHP0C200**23**	1 1 1 0 1 0	ZONE2 PRESET DOWN
RCSHP0C200**08**	0 0 0 1 0 0	ZONE2 VOL. P2 (-20dB)	RCSHP0C200**24**	0 0 0 1 1 0	
RCSHP0C200**09**	1 0 0 1 0 0	ZONE2 VOL. P3 (-40dB)	RCSHP0C200**25**	1 0 0 1 1 0	ZONE2 MEDIA PLAYER
RCSHP0C200**10**	0 1 0 1 0 0	ZONE2 CBL/SAT	RCSHP0C200**26**	0 1 0 1 1 0	
RCSHP0C200**11**	1 1 0 1 0 0		RCSHP0C200**27**	1 1 0 1 1 0	ZONE2 TV AUDIO
RCSHP0C200**12**	0 0 1 1 0 0	ZONE3 VOL. PRESET1 (0dB)	RCSHP0C200**28**	0 0 1 1 1 0	
RCSHP0C200**13**	1 0 1 1 0 0	ZONE2 VOL UP	RCSHP0C200**29**	1 0 1 1 1 0	STEREO
RCSHP0C200**14**	0 1 1 1 0 0	ZONE2 VOL DOWN	RCSHP0C200**30**	0 1 1 1 1 0	DIRECT
RCSHP0C200**15**	1 1 1 1 0 0	ZONE2 PHONO	RCSHP0C200**31**	1 1 1 1 1 0	ZONE3 VOL. PRESET2 (0dB)

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0C200**32**	0 0 0 0 0 1	SETUP MENU	RCSHP0C200**48**	0 0 0 0 1 1	
RCSHP0C200**33**	1 0 0 0 0 1		RCSHP0C200**49**	1 0 0 0 1 1	
RCSHP0C200**34**	0 1 0 0 0 1	ZONE3 VOL. PRESET2 (0dB)	RCSHP0C200**50**	0 1 0 0 1 1	
RCSHP0C200**35**	1 1 0 0 0 1	CURSOR UP	RCSHP0C200**51**	1 1 0 0 1 1	
RCSHP0C200**36**	0 0 1 0 0 1	CURSOR DOWN	RCSHP0C200**52**	0 0 1 0 1 1	
RCSHP0C200**37**	1 0 1 0 0 1		RCSHP0C200**53**	1 0 1 0 1 1	
RCSHP0C200**38**	0 1 1 0 0 1		RCSHP0C200**54**	0 1 1 0 1 1	INPUT MODE
RCSHP0C200**39**	1 1 1 0 0 1		RCSHP0C200**55**	1 1 1 0 1 1	ALL TREBLE UP
RCSHP0C200**40**	0 0 0 1 0 1	MULTI CH STEREO	RCSHP0C200**56**	0 0 0 1 1 1	ALL TREBLE DOWN
RCSHP0C200**41**	1 0 0 1 0 1		RCSHP0C200**57**	1 0 0 1 1 1	
RCSHP0C200**42**	0 1 0 1 0 1		RCSHP0C200**58**	0 1 0 1 1 1	
RCSHP0C200**43**	1 1 0 1 0 1		RCSHP0C200**59**	1 1 0 1 1 1	
RCSHP0C200**44**	0 0 1 1 0 1		RCSHP0C200**60**	0 0 1 1 1 1	
RCSHP0C200**45**	1 0 1 1 0 1		RCSHP0C200**61**	1 0 1 1 1 1	
RCSHP0C200**46**	0 1 1 1 0 1		RCSHP0C200**62**	0 1 1 1 1 1	ZONE2 DVD
RCSHP0C200**47**	1 1 1 1 0 1	CH LEVEL	RCSHP0C200**63**	1 1 1 1 1 1	ALL BASS UP

FORMAT: SHARP /DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED /REMOTE ID: 1
SYSTEM ADDRESS (C1 ～ C5) : 0 0 1 1 0 , EXTENSION BIT (C12,C13) : 1 0

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0C100**32**	0 0 0 0 0 1		RCSHP0C100**48**	0 0 0 0 1 1	
RCSHP0C100**33**	1 0 0 0 0 1		RCSHP0C100**49**	1 0 0 0 1 1	
RCSHP0C100**34**	0 1 0 0 0 1		RCSHP0C100**50**	0 1 0 0 1 1	
RCSHP0C100**35**	1 1 0 0 0 1		RCSHP0C100**51**	1 1 0 0 1 1	
RCSHP0C100**36**	0 0 1 0 0 1		RCSHP0C100**52**	0 0 1 0 1 1	
RCSHP0C100**37**	1 0 1 0 0 1		RCSHP0C100**53**	1 0 1 0 1 1	
RCSHP0C100**38**	0 1 1 0 0 1		RCSHP0C100**54**	0 1 1 0 1 1	
RCSHP0C100**39**	1 1 1 0 0 1		RCSHP0C100**55**	1 1 1 0 1 1	
RCSHP0C100**40**	0 0 0 1 0 1		RCSHP0C100**56**	0 0 0 1 1 1	
RCSHP0C100**41**	1 0 0 1 0 1		RCSHP0C100**57**	1 0 0 1 1 1	
RCSHP0C100**42**	0 1 0 1 0 1		RCSHP0C100**58**	0 1 0 1 1 1	
RCSHP0C100**43**	1 1 0 1 0 1		RCSHP0C100**59**	1 1 0 1 1 1	
RCSHP0C100**44**	0 0 1 1 0 1		RCSHP0C100**60**	0 0 1 1 1 1	
RCSHP0C100**45**	1 0 1 1 0 1		RCSHP0C100**61**	1 0 1 1 1 1	
RCSHP0C100**46**	0 1 1 1 0 1		RCSHP0C100**62**	0 1 1 1 1 1	
RCSHP0C100**47**	1 1 1 1 0 1		RCSHP0C100**63**	1 1 1 1 1 1	CURSOR LEFT

FORMAT: SHARP /DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED /REMOTE ID: 1
SYSTEM ADDRESS (C1 ～ C5) : 0 0 1 1 0 , EXTENSION BIT (C12,C13) : 1 1

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0C300**00**	0 0 0 0 0 0		RCSHP0C300**16**	0 0 0 0 1 0	
RCSHP0C300**01**	1 0 0 0 0 0	1	RCSHP0C300**17**	1 0 0 0 1 0	
RCSHP0C300**02**	0 1 0 0 0 0	2	RCSHP0C300**18**	0 1 0 0 1 0	DIRECT SEARCH/RDS SEARCH (AVR-X1700H/S760H EU only)
RCSHP0C300**03**	1 1 0 0 0 0	3	RCSHP0C300**19**	1 1 0 0 1 0	
RCSHP0C300**04**	0 0 1 0 0 0	4	RCSHP0C300**20**	0 0 1 0 1 0	PTY (AVR-X1700H/S760H EU only)
RCSHP0C300**05**	1 0 1 0 0 0	5	RCSHP0C300**21**	1 0 1 0 1 0	TUNER PRESET DOWN
RCSHP0C300**06**	0 1 1 0 0 0	6	RCSHP0C300**22**	0 1 1 0 1 0	TUNER PRESET UP
RCSHP0C300**07**	1 1 1 0 0 0	7	RCSHP0C300**23**	1 1 1 0 1 0	TUNER BAND FM/AM BAND FM/ DAB (AVR-X1700H/S760H EU only)
RCSHP0C300**08**	0 0 0 1 0 0	8	RCSHP0C300**24**	0 0 0 1 1 0	TUNER TUNING MODE
RCSHP0C300**09**	1 0 0 1 0 0	9	RCSHP0C300**25**	1 0 0 1 1 0	TUNER TUNING UP
RCSHP0C300**10**	0 1 0 1 0 0	0	RCSHP0C300**26**	0 1 0 1 1 0	TUNER TUNING DOWN
RCSHP0C300**11**	1 1 0 1 0 0		RCSHP0C300**27**	1 1 0 1 1 0	
RCSHP0C300**12**	0 0 1 1 0 0	TUNER MEMORY	RCSHP0C300**28**	0 0 1 1 1 0	
RCSHP0C300**13**	1 0 1 1 0 0	TUNER SHIFT	RCSHP0C300**29**	1 0 1 1 1 0	
RCSHP0C300**14**	0 1 1 1 0 0	RT (AVR-X1700H/S760H EU only)	RCSHP0C300**30**	0 1 1 1 1 0	
RCSHP0C300**15**	1 1 1 1 0 0		RCSHP0C300**31**	1 1 1 1 1 0	DIMMER

FORMAT: SHARP /DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED /REMOTE ID: 1
SYSTEM ADDRESS (C1 ～ C5) : 0 1 0 0 0 , EXTENSION BIT (C12,C13) : 1 0

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0210**00**	0 0 0 0 0 0		RCSHP0210**16**	0 0 0 0 1 0	
RCSHP0210**01**	1 0 0 0 0 0		RCSHP0210**17**	1 0 0 0 1 0	
RCSHP0210**02**	0 1 0 0 0 0		RCSHP0210**18**	0 1 0 0 1 0	ZONE3 TV AUDIO
RCSHP0210**03**	1 1 0 0 0 0		RCSHP0210**19**	1 1 0 0 1 0	ZONE3 CBL/SAT
RCSHP0210**04**	0 0 1 0 0 0		RCSHP0210**20**	0 0 1 0 1 0	ZONE3 GAME
RCSHP0210**05**	1 0 1 0 0 0		RCSHP0210**21**	1 0 1 0 1 0	ZONE3 MEDIAPLAYER
RCSHP0210**06**	0 1 1 0 0 0		RCSHP0210**22**	0 1 1 0 1 0	
RCSHP0210**07**	1 1 1 0 0 0		RCSHP0210**23**	1 1 1 0 1 0	ZONE3 AUX
RCSHP0210**08**	0 0 0 1 0 0	ZONE3 TUNER	RCSHP0210**24**	0 0 0 1 1 0	
RCSHP0210**09**	1 0 0 1 0 0	ZONE3 PHONO	RCSHP0210**25**	1 0 0 1 1 0	
RCSHP0210**10**	0 1 0 1 0 0	ZONE3 CD	RCSHP0210**26**	0 1 0 1 1 0	
RCSHP0210**11**	1 1 0 1 0 0		RCSHP0210**27**	1 1 0 1 1 0	
RCSHP0210**12**	0 0 1 1 0 0		RCSHP0210**28**	0 0 1 1 1 0	
RCSHP0210**13**	1 0 1 1 0 0		RCSHP0210**29**	1 0 1 1 1 0	ZONE2 ON/OFF
RCSHP0210**14**	0 1 1 1 0 0	ZONE3 DVD	RCSHP0210**30**	0 1 1 1 1 0	
RCSHP0210**15**	1 1 1 1 0 0	ZONE3 Blu-ray	RCSHP0210**31**	1 1 1 1 1 0	

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0210**32**	0 0 0 0 0 1		RCSHP0210**48**	0 0 0 0 1 1	
RCSHP0210**33**	1 0 0 0 0 1		RCSHP0210**49**	1 0 0 0 1 1	
RCSHP0210**34**	0 1 0 0 0 1		RCSHP0210**50**	0 1 0 0 1 1	
RCSHP0210**35**	1 1 0 0 0 1		RCSHP0210**51**	1 1 0 0 1 1	
RCSHP0210**36**	0 0 1 0 0 1		RCSHP0210**52**	0 0 1 0 1 1	
RCSHP0210**37**	1 0 1 0 0 1	ZONE3 VOLUME DOWN	RCSHP0210**53**	1 0 1 0 1 1	
RCSHP0210**38**	0 1 1 0 0 1	ZONE3 VOLUME UP	RCSHP0210**54**	0 1 1 0 1 1	
RCSHP0210**39**	1 1 1 0 0 1		RCSHP0210**55**	1 1 1 0 1 1	
RCSHP0210**40**	0 0 0 1 0 1		RCSHP0210**56**	0 0 0 1 1 1	
RCSHP0210**41**	1 0 0 1 0 1		RCSHP0210**57**	1 0 0 1 1 1	MAIN ZONE ON
RCSHP0210**42**	0 1 0 1 0 1	PURE DIRECT ※ X1700H NA only	RCSHP0210**58**	0 1 0 1 1 1	MAIN ZONE OFF
RCSHP0210**43**	1 1 0 1 0 1		RCSHP0210**59**	1 1 0 1 1 1	ZONE2 ON
RCSHP0210**44**	0 0 1 1 0 1		RCSHP0210**60**	0 0 1 1 1 1	ZONE2 OFF
RCSHP0210**45**	1 0 1 1 0 1		RCSHP0210**61**	1 0 1 1 1 1	ZONE3 ON
RCSHP0210**46**	0 1 1 1 0 1		RCSHP0210**62**	0 1 1 1 1 1	ZONE3 OFF
RCSHP0210**47**	1 1 1 1 0 1		RCSHP0210**63**	1 1 1 1 1 1	

FORMAT: SHARP /DATA CONSTRUCTION 15bits C14 0 C15 0=NOT INVERTED, 1=INVERTED /REMOTE ID: 1
SYSTEM ADDRESS (C1 ～ C5) : 0 0 1 0 0 , EXTENSION BIT (C12,C13) : 0 1

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0420**00**	0 0 0 0 0 0		RCSHP0420**16**	0 0 0 0 1 0	DOLBY PL II MUSIC
RCSHP0420**01**	1 0 0 0 0 0		RCSHP0420**17**	1 0 0 0 1 0	DOLBY PL
RCSHP0420**02**	0 1 0 0 0 0		RCSHP0420**18**	0 1 0 0 1 0	
RCSHP0420**03**	1 1 0 0 0 0	ROCK ARENA	RCSHP0420**19**	1 1 0 0 1 0	
RCSHP0420**04**	0 0 1 0 0 0	JAZZ CLUB	RCSHP0420**20**	0 0 1 0 1 0	
RCSHP0420**05**	1 0 1 0 0 0		RCSHP0420**21**	1 0 1 0 1 0	
RCSHP0420**06**	0 1 1 0 0 0	MONO MOVIE	RCSHP0420**22**	0 1 1 0 1 0	
RCSHP0420**07**	1 1 1 0 0 0	MATRIX	RCSHP0420**23**	1 1 1 0 1 0	
RCSHP0420**08**	0 0 0 1 0 0	VIDEO GAME	RCSHP0420**24**	0 0 0 1 1 0	
RCSHP0420**09**	1 0 0 1 0 0	VIRTUAL	RCSHP0420**25**	1 0 0 1 1 0	
RCSHP0420**10**	0 1 0 1 0 0		RCSHP0420**26**	0 1 0 1 1 0	
RCSHP0420**11**	1 1 0 1 0 0		RCSHP0420**27**	1 1 0 1 1 0	
RCSHP0420**12**	0 0 1 1 0 0		RCSHP0420**28**	0 0 1 1 1 0	
RCSHP0420**13**	1 0 1 1 0 0	DTS NEO:6 CINEMA	RCSHP0420**29**	1 0 1 1 1 0	MultEQ/MultEQ XT
RCSHP0420**14**	0 1 1 1 0 0	DTS NEO:6 MUSIC	RCSHP0420**30**	0 1 1 1 1 0	
RCSHP0420**15**	1 1 1 1 0 0	DOLBY PL II CINEMA	RCSHP0420**31**	1 1 1 1 1 0	

No.	Data (C6 ～ C11)	Key Name	No.	Data (C6 ～ C11)	Key Name
RCSHP0420**32**	0 0 0 0 0 1		RCSHP0420**48**	0 0 0 0 1 1	
RCSHP0420**33**	1 0 0 0 0 1		RCSHP0420**49**	1 0 0 0 1 1	
RCSHP0420**34**	0 1 0 0 0 1		RCSHP0420**50**	0 1 0 0 1 1	
RCSHP0420**35**	1 1 0 0 0 1		RCSHP0420**51**	1 1 0 0 1 1	INPUT MDOE AUTO
RCSHP0420**36**	0 0 1 0 0 1		RCSHP0420**52**	0 0 1 0 1 1	
RCSHP0420**37**	1 0 1 0 0 1		RCSHP0420**53**	1 0 1 0 1 1	
RCSHP0420**38**	0 1 1 0 0 1		RCSHP0420**54**	0 1 1 0 1 1	
RCSHP0420**39**	1 1 1 0 0 1		RCSHP0420**55**	1 1 1 0 1 1	
RCSHP0420**40**	0 0 0 1 0 1		RCSHP0420**56**	0 0 0 1 1 1	
RCSHP0420**41**	1 0 0 1 0 1		RCSHP0420**57**	1 0 0 1 1 1	
RCSHP0420**42**	0 1 0 1 0 1		RCSHP0420**58**	0 1 0 1 1 1	
RCSHP0420**43**	1 1 0 1 0 1		RCSHP0420**59**	1 1 0 1 1 1	
RCSHP0420**44**	0 0 1 1 0 1		RCSHP0420**60**	0 0 1 1 1 1	
RCSHP0420**45**	1 0 1 1 0 1		RCSHP0420**61**	1 0 1 1 1 1	
RCSHP0420**46**	0 1 1 1 0 1		RCSHP0420**62**	0 1 1 1 1 1	
RCSHP0420**47**	1 1 1 1 0 1		RCSHP0420**63**	1 1 1 1 1 1	

FORMAT KASEIKYO

DATA CONSTRUCTION 48bits

DENON CODE																Parity				GENRE1 (*1)			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	*	*	*	*
GENRE2 (*2)				Data										ID (*3)		Parity (*4)							
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

(*4) Parity :
Delimit of each to 8 bits, and add the 3rd byte and the 4th byte and the 5th byte with modulo 2 (exclusive-OR).
3rd byte (17 - 24 bit)
4th byte (25 - 32 bit)
5th byte (33 - 40 bit)

REMOTE ID SETTING: (default ID 1)

ID No.	ZONE/DEVICE	GENRE1 (*1)				GENRE2 (*2)				ID (*3)		
		21	22	23	24	25	26	27	28	39	40	
1	MAIN ZONE	0	0	1	0	1	0	0	0	0	0	SHARP&K4-1
	ZONE2 *1	0	0	1	0	1	1	0	0	0	0	SHARP&K4-3
	TUNER *2	0	0	1	0	1	0	0	0	0	0	SHARP&K4-1
	HEOS MUSIC	0	0	1	0	1	1	1	0	0	0	K4-7
2	MAIN ZONE	0	0	1	0	0	1	0	0	1	0	K4-2
	ZONE2 *1	0	0	1	0	0	0	1	0	1	0	K4-4
	TUNER *2	0	0	1	0	0	1	0	0	1	0	K4-2
	HEOS MUSIC	0	0	1	0	0	0	0	1	1	0	K4-8
3	MAIN ZONE	0	0	1	0	0	1	0	0	0	1	K4-2
	ZONE2 *1	0	0	1	0	0	0	1	0	0	1	K4-4
	TUNER *2	0	0	1	0	0	1	0	0	0	1	K4-2
	HEOS MUSIC	0	0	1	0	0	0	0	1	0	1	K4-8
4	MAIN ZONE	0	0	1	0	0	1	0	0	1	1	K4-2
	ZONE2 *1	0	0	1	0	0	0	1	0	1	1	K4-4
	TUNER *2	0	0	1	0	0	1	0	0	1	1	K4-2
	HEOS MUSIC	0	0	1	0	0	0	0	1	1	1	K4-8

*1 : AVR-X1700H North America model : ZONE2 is available.
AVR-S760H/AVR-X1700H other than North America: ZONE2 is available when “Assign Mode” is set to “ZONE2”.
*2 : AVR-X1700H DAB : FM/DAB is available
AVR-X1700H and AVR-S760H : FM/AM is available

MAIN ZONE

REMOTE ID SET: 1

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				1			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0

REMOTE ID SET: 2-4

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				2			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0

No.	Data										ID		parity								Key Name
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
RCKSK0410001	1	0	0	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ALL POWER ON/OFF
RCKSK0410002	0	1	0	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ALL POWER ON
RCKSK0410003	1	1	0	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ALL POWER OFF
RCKSK0410005	1	0	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	MAIN ZONE ON/OFF
RCKSK0410006	0	1	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	MAIN ZONE ON
RCKSK0410007	1	1	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	MAIN ZONE OFF
RCKSK0410016	0	0	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY1
RCKSK0410017	1	0	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY2
RCKSK0410018	0	1	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY3
RCKSK0410019	1	1	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY4
RCKSK0410020	0	0	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY5
RCKSK0410021	1	0	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY6
RCKSK0410022	0	1	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY7
RCKSK0410023	1	1	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY8
RCKSK0410024	0	0	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY9
RCKSK0410025	1	0	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	KEY0
RCKSK0410027	1	1	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR UP
RCKSK0410028	0	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR DOWN
RCKSK0410029	1	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR LEFT
RCKSK0410030	0	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR RIGHT
RCKSK0410031	1	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ENTER
RCKSK0410034	0	1	0	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	RETURN/BACK
RCKSK0410035	1	1	0	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	SETUP MENU
RCKSK0410036	0	0	1	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	MEMORY
RCKSK0410042	0	1	0	1	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	UPGRADE ID ON
RCKSK0410045	1	0	1	1	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	Bilingual Mode (toggle) (JP only)
RCKSK0410112	0	0	0	0	1	1	1	0	0	0	*	*	*	*	*	*	*	*	*	*	VIDEO SELECT
RCKSK0410292	0	0	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 1
RCKSK0410293	1	0	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 2
RCKSK0410294	0	1	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 3
RCKSK0410295	1	1	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 4
RCKSK0410296	0	0	0	1	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	QUICK SELECT 5
RCKSK0410304	0	0	0	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	STEREO
RCKSK0410305	1	0	0	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	DIRECT/STEREO
RCKSK0410306	0	1	0	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	DIRECT
RCKSK0410307	1	1	0	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	PURE DIRECT (X1700H NA only)
RCKSK0410308	0	0	1	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	STANDARD
RCKSK0410309	1	0	1	0	1	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	DIRECT
RCKSK0410320	0	0	0	0	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	DTS SURROUND
RCKSK0410324	0	0	1	0	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	AUTO SOUND
RCKSK0410329	1	0	0	1	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MOVIE SURROUND
RCKSK0410330	0	1	0	1	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MUSIC SURROUND
RCKSK0410331	1	1	0	1	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	GAME SURROUND
RCKSK0410332	0	0	1	1	0	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	SOUND MODE toggle (Reverse)
RCKSK0410336	0	0	0	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	DSP SIMULATION
RCKSK0410337	1	0	0	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MULTI CH STEREO
RCKSK0410340	0	0	1	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ROCK ARENA
RCKSK0410341	1	0	1	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	JAZZ CLUB
RCKSK0410343	1	1	1	0	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MONO MOVIE
RCKSK0410344	0	0	0	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	MATRIX
RCKSK0410345	1	0	0	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	VIDEO GAME
RCKSK0410346	0	1	0	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	VIRTUAL
RCKSK0410348	0	0	1	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	Dolby Atmos ON/OFF
RCKSK0410349	1	0	1	1	1	0	1	0	1	0	*	*	*	*	*	*	*	*	*	*	SOUND MODE toggle (Normal)
RCKSK0410352	0	0	0	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE SELECT
RCKSK0410353	1	0	0	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE:ANALOG
RCKSK0410357	1	0	1	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE HDMI
RCKSK0410358	0	1	1	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE:AUTO
RCKSK0410359	1	1	1	0	0	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	INPUT MODE DIGITAL
RCKSK0410368	0	0	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	Volume Up
RCKSK0410369	1	0	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	Volume Down
RCKSK0410370	0	1	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	Mute
RCKSK0410372	0	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	M.VR PRESET1 (0dB)
RCKSK0410373	1	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	M.VR PRESET2 (-20dB)
RCKSK0410374	0	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	M.VR PRESET3 (-40dB)
RCKSK0410378	0	1	0	1	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	CHANNEL LEVEL
RCKSK0410384	0	0	0	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FL LEVEL UP
RCKSK0410385	1	0	0	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FL LEVEL DOWN
RCKSK0410386	0	1	0	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FR LEVEL UP
RCKSK0410387	1	1	0	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FR LEVEL DOWN
RCKSK0410388	0	0	1	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	C LEVEL UP
RCKSK0410389	1	0	1	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	C LEVEL DOWN
RCKSK0410390	0	1	1	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SW LEVEL UP
RCKSK0410391	1	1	1	0	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SW LEVEL DOWN
RCKSK0410392	0	0	0	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SL LEVEL UP
RCKSK0410393	1	0	0	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SL LEVEL DOWN
RCKSK0410394	0	1	0	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SR LEVEL UP
RCKSK0410395	1	1	0	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SR LEVEL DOWN
RCKSK0410396	0	0	1	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SBL LEVEL UP
RCKSK0410397	1	0	1	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SBL LEVEL DOWN
RCKSK0410398	0	1	1	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SBR LEVEL UP
RCKSK0410399	1	1	1	1	0	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SBR LEVEL DOWN
RCKSK0410400	0	0	0	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	ALL TREBLE UP
RCKSK0410401	1	0	0	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	ALL TREBLE DOWN
RCKSK0410403	1	1	0	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	ALL BASS UP
RCKSK0410404	0	0	1	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	ALL BASS DOWN
RCKSK0410406	0	1	1	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TONE CONTROL ON/OFF
RCKSK0410407	1	1	1	0	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TONE CONTROL OFF
RCKSK0410408	0	0	0	1	1	0	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TONE CONTROL ON
RCKSK0410417	1	0	0	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TFL LEVEL UP
RCKSK0410418	0	1	0	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TFL LEVEL DOWN
RCKSK0410419	1	1	0	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TFR LEVEL UP
RCKSK0410420	0	0	1	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TFR LEVEL DOWN
RCKSK0410421	1	0	1	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TML LEVEL UP
RCKSK0410422	0	1	1	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TML LEVEL DOWN
RCKSK0410423	1	1	1	0	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TMR LEVEL UP
RCKSK0410424	0	0	0	1	0	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	TMR LEVEL DOWN
RCKSK0410433	1	0	0	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FDL LEVEL UP
RCKSK0410434	0	1	0	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FDL LEVEL DOWN
RCKSK0410435	1	1	0	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FDR LEVEL UP
RCKSK0410436	0	0	1	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	FDR LEVEL DOWN
RCKSK0410437	1	0	1	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SDL LEVEL UP
RCKSK0410438	0	1	1	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SDL LEVEL DOWN
RCKSK0410439	1	1	1	0	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SDR LEVEL UP
RCKSK0410440	0	0	0	1	1	1	0	1	1	0	*	*	*	*	*	*	*	*	*	*	SDR LEVEL DOWN
RCKSK0410522	0	1	0	1	0	0	0	0	0	1	*	*	*	*	*	*	*	*	*	*	FRONT SPEAKER ※ X1700H only
RCKSK0410542	0	1	1	1	1	0	0	0	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME OFF
RCKSK0410545	1	0	0	0	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME SELECT
RCKSK0410547	1	1	0	0	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC EQ SELECT
RCKSK0410548	0	0	1	0	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	AUDIO RESTORER SELECT
RCKSK0410549	1	0	1	0	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC EQ/VOLUME SELECT
RCKSK0410556	0	0	1	1	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	RESTORER (OFF)
RCKSK0410557	1	0	1	1	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	RESTORER (High)
RCKSK0410558	0	1	1	1	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	RESTORER (Medium)
RCKSK0410559	1	1	1	1	0	1	0	0	0	1	*	*	*	*	*	*	*	*	*	*	RESTORER (Low)
RCKSK0410605	1	0	1	1	1	0	1	0	0	1	*	*	*	*	*	*	*	*	*	*	FRONTSP A ON/OFF ※ X1700H only
RCKSK0410606	0	1	1	1	1	0	1	0	0	1	*	*	*	*	*	*	*	*	*	*	FRONTSP B ON/OFF ※ X1700H only
RCKSK0410620	0	0	1	1	0	1	1	0	0	1	*	*	*	*	*	*	*	*	*	*	AUDIO DELAY MODE
RCKSK0410621	1	0	1	1	0	1	1	0	0	1	*	*	*	*	*	*	*	*	*	*	AUDIO DELAY UP
RCKSK0410622	0	1	1	1	0	1	1	0	0	1	*	*	*	*	*	*	*	*	*	*	AUDIO DELAY DOWN
RCKSK0410624	0	0	0	0	1	1	1	0	0	1	*	*	*	*	*	*	*	*	*	*	INFO
RCKSK0410640	0	0	0	0	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FLD STATUS
RCKSK0410649	1	0	0	1	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FHL LEVEL UP
RCKSK0410650	0	1	0	1	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FHL LEVEL DOWN
RCKSK0410651	1	1	0	1	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FHR LEVEL UP
RCKSK0410652	0	0	1	1	0	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	FHR LEVEL DOWN
RCKSK0410656	0	0	0	0	1	0	0	1	0	1	*	*	*	*	*	*	*	*	*	*	Front Display (Dimmer)
RCKSK0410691	1	1	0	0	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	Internet Radio
RCKSK0410698	0	1	0	1	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	CD / PHONO (PHONO)
RCKSK0410704	0	0	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	PHONO
RCKSK0410705	1	0	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	TUNER
RCKSK0410706	0	1	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	CD
RCKSK0410711	1	1	1	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	HEOS MUSIC
RCKSK0410715	1	1	0	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	TUNER
RCKSK0410716	0	0	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	HEOS MUSIC
RCKSK0410718	0	1	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	USB
RCKSK0410719	1	1	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	TUNER
RCKSK0410720	0	0	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DVD
RCKSK0410721	1	0	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Blu-ray
RCKSK0410722	0	1	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	TV AUDIO
RCKSK0410723	1	1	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	CBL/SAT
RCKSK0410725	1	0	1	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	GAME
RCKSK0410726	0	1	1	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	MEDIA PLAYER
RCKSK0410729	1	0	0	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	AUX1
RCKSK0410730	0	1	0	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	**AUX2**
RCKSK0410732	0	0	1	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Blu-ray
RCKSK0410735	1	1	1	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	MEDIA PLAYER
RCKSK0410736	0	0	0	0	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	MultEQ/MultEQ XT
RCKSK0410741	1	0	1	0	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	INTERNET RADIO (Recent Play)
RCKSK0410746	0	1	0	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC EQ ON
RCKSK0410747	1	1	0	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC EQ OFF
RCKSK0410748	0	0	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME (Heavy)
RCKSK0410749	1	0	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME (Medium)
RCKSK0410750	0	1	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	DYNAMIC VOLUME (Light)
RCKSK0410751	1	1	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Bluetooth
RCKSK0410760	0	0	0	1	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Reference Level Offset (0dB) for Dynamic EQ
RCKSK0410761	1	0	0	1	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Reference Level Offset (5dB) for Dynamic EQ
RCKSK0410762	0	1	0	1	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Reference Level Offset (10dB) for Dynamic EQ
RCKSK0410763	1	1	0	1	1	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	Reference Level Offset (15dB) for Dynamic EQ
RCKSK0410787	1	1	0	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	INPUT SOURCE SELECT Right
RCKSK0410788	0	0	1	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	INPUT SOURCE SELECT Left
RCKSK0410789	1	0	1	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	Graphic EQ (toggle)
RCKSK0410791	1	1	1	1	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	Graphic EQ ON
RCKSK0410792	0	0	0	1	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	Graphic EQ OFF
RCKSK0410822	0	1	1	0	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	All Zone Stereo ON
RCKSK0410823	1	1	1	0	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	All Zone Stereo OFF
RCKSK0410826	0	1	0	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI (CEC) Control ON
RCKSK0410827	1	1	0	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI (CEC) Control OFF
RCKSK0410829	1	0	1	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI Audio Out Select
RCKSK0410830	0	1	1	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI Audio Out TV

RCKSK0410831	1	1	1	1	1	1	0	0	1	1	*	*	*	*	*	*	*	*	*	*	HDMI Audio Out AMP
RCKSK0410834	0	1	0	0	0	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	All Zone Stereo ON/OFF
RCKSK0410836	0	0	1	0	0	0	1.	0	1	1	*	*	*	*	*	*	*	*	*	*	SLEEP MODE
RCKSK0410857	1	0	0	1	1	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	Loudness Management ON/OFF
RCKSK0410872	0	0	0	1	0	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ECO MODE (toggle)
RCKSK0410873	1	0	0	1	0	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ECO MODE (OFF)
RCKSK0410874	0	1	0	1	0	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ECO MODE (ON)
RCKSK0410875	1	1	0	1	0	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ECO MODE (AUTO)
RCKSK0410891	1	1	0	1	1	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	**Speaker Preset (Toggle)**
RCKSK0410892	0	0	1	1	1	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	**Speaker Preset 1**
RCKSK0410893	1	0	1	1	1	1	1	0	1	1	*	*	*	*	*	*	*	*	*	*	**Speaker Preset 2**
RCKSK0410945	1	0	0	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PRESET CH UP/ PAGE Previous
RCKSK0410946	0	1	0	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PRESET CH DOWN/PAGE Next
RCKSK0410949	1	0	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	OPTION
RCKSK0410950	0	1	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	PAGE Previous
RCKSK0410951	1	1	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	PAGE Next
RCKSK0410956	0	0	1	1	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE REPEAT
RCKSK0410957	1	0	1	1	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE RANDOM/SHUFFLE
RCKSK0410970	0	1	0	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE TUNING UP
RCKSK0410971	1	1	0	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE TUNING DOWN
RCKSK0410972	0	0	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PRESET CH UP
RCKSK0410973	1	0	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PRESET CH DOWN
RCKSK0410975	1	1	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE BAND DAB (AVR-X1700H DAB only)
RCKSK0410976	0	0	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE Rewind
RCKSK0410977	1	0	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE BAND FM
RCKSK0410978	0	1	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE BAND AM
RCKSK0410979	1	1	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE Fast Forward
RCKSK0410983	1	1	1	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE SEARCH (RDS)
RCKSK0410992	0	0	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PLAY/PAUSE
RCKSK0410993	1	0	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE STOP
RCKSK0410994	0	1	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE PAUSE
RCKSK0410995	1	1	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE SKIP MINUS/TUNING DOWN
RCKSK0410996	0	0	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE SKIP PLUS/TUNING UP
RCKSK0410997	1	0	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE TUNING DOWN
RCKSK0410998	0	1	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	MAIN ZONE TUNING UP

ZONE2

REMOTE ID SET: 1

DENON CODE																Parity				GENRE1				**GENRE2**			
4				5				2				3				0				4				**3**			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	**25**	**26**	**27**	**28**
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	**1**	**1**	**0**	**0**

REMOTE ID SET: 2-4

DENON CODE																Parity				GENRE1				**GENRE2**			
4				5				2				3				0				4				**4**			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	**25**	**26**	**27**	**28**
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	**0**	**0**	**1**	**0**

No.	Data										ID		parity								Key Name
	29	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	
RCKSK0430005	1	0	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 POWER ON/OFF
RCKSK0430006	0	1	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 POWER ON
RCKSK0430007	1	1	1	0	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 POWER OFF
RCKSK0430016	0	0	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY1
RCKSK0430017	1	0	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY2
RCKSK0430018	0	1	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY3
RCKSK0430019	1	1	0	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY4
RCKSK0430020	0	0	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY5
RCKSK0430021	1	0	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY6
RCKSK0430022	0	1	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY7
RCKSK0430023	1	1	1	0	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY8
RCKSK0430024	0	0	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY9
RCKSK0430025	1	0	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 KEY0
RCKSK0430027	1	1	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 CURSOR UP
RCKSK0430028	0	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 CURSOR DOWN
RCKSK0430029	1	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 CURSOR LEFT
RCKSK0430030	0	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 CURSOR RIGHT
RCKSK0430031	1	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 ENTER
RCKSK0430034	0	1	0	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 RETURN
RCKSK0430036	0	0	1	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ZONE2 MEMORY
RCKSK0430292	0	0	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 1
RCKSK0430293	1	0	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 2
RCKSK0430294	0	1	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 3
RCKSK0430295	1	1	1	0	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 4
RCKSK0430296	0	0	0	1	0	1	0	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 QUICK SELECT 5
RCKSK0430368	0	0	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VOLUME UP
RCKSK0430369	1	0	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VOLUME DOWN
RCKSK0430370	0	1	0	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VOLUME MUTE
RCKSK0430372	0	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VR PRESET1 (0dB)
RCKSK0430373	1	0	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VR PRESET2 (-20dB)
RCKSK0430374	0	1	1	0	1	1	1	0	1	0	*	*	*	*	*	*	*	*	*	*	ZONE2 VR PRESET3 (-40dB)
RCKSK0430691	1	1	0	0	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Internet Radio
RCKSK0430692	0	0	1	0	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	Main Zone Source CALL
RCKSK0430698	0	1	0	1	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 CD / PHONO (PHNO)
RCKSK0430703	1	1	1	1	1	1	0	1	0	1	*	*	*	*	*	*	*	*	*	*	**ZONE2 SOURCE**
RCKSK0430704	0	0	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PHONO
RCKSK0430705	1	0	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNER
RCKSK0430706	0	1	0	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 CD
RCKSK0430711	1	1	1	0	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 HEOS MUSIC
RCKSK0430715	1	1	0	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNER
RCKSK0430716	0	0	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 HEOS MUSIC
RCKSK0430718	0	1	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 USB
RCKSK0430719	1	1	1	1	0	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNER
RCKSK0430720	0	0	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 DVD
RCKSK0430721	1	0	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Blu-ray
RCKSK0430722	0	1	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TV AUDIO
RCKSK0430723	1	1	0	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 CBL/SAT
RCKSK0430725	1	0	1	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 GAME
RCKSK0430726	0	1	1	0	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 MEDIA PLAYER
RCKSK0430729	1	0	0	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 AUX1
RCKSK0430730	0	1	0	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	**ZONE2 AUX2**
RCKSK0430732	0	0	1	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Blu-ray
RCKSK0430735	1	1	1	1	1	0	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 MEDIA PLAYER
RCKSK0430741	1	0	1	0	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 INTERNET RADIO (Recent Play)
RCKSK0430751	1	1	1	1	0	1	1	1	0	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Bluetooth
RCKSK0430787	1	1	0	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 INPUT SOURCE SELECT Right
RCKSK0430788	0	0	1	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 INPUT SOURCE SELECT Left
RCKSK0430836	0	0	1	0	0	0	1	0	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 SLEEP
RCKSK0430945	1	0	0	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PRESET CH UP/ PAGE Previous
RCKSK0430946	0	1	0	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PRESET CH DOWN/PAGE Next
RCKSK0430950	0	1	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PAGE Previous
RCKSK0430951	1	1	1	0	1	1	0	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PAGE Next
RCKSK0430970	0	1	0	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNING UP
RCKSK0430971	1	1	0	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNING DOWN
RCKSK0430972	0	0	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PRESET CH UP
RCKSK0430973	1	0	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PRESET CH DOWN
RCKSK0430975	1	1	1	1	0	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 BAND DAB (AVR-X1700H DAB only)
RCKSK0430976	0	0	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Rewind
RCKSK0430977	1	0	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 BAND FM
RCKSK0430978	0	1	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 BAND AM
RCKSK0430979	1	1	0	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 Fast Forward
RCKSK0430983	1	1	1	0	1	0	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 SEARCH (RDS)
RCKSK0430992	0	0	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PLAY/PAUSE
RCKSK0430993	1	0	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 STOP
RCKSK0430994	0	1	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 PAUSE

RCKSK0430995	1	1	0	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 SKIP MINUS/TUNING DOWN
RCKSK0430996	0	0	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 SKIP PLUS/TUNING UP
RCKSK0430997	1	0	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNING DOWN
RCKSK0430998	0	1	1	0	0	1	1	1	1	1	*	*	*	*	*	*	*	*	*	*	ZONE2 TUNING UP

ANALOG TUNER/DAB

REMOTE ID SET: 1

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				1			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0

REMOTE ID SET: 2-4

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				2			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0

No.	Data										ID		parity								Key Name
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
RCKSK0410144	0	0	0	0	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	(FM/AM) TUNING UP (DAB) STATION UP (AVR-X1700H DAB only)
RCKSK0410145	1	0	0	0	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	(FM/AM) TUNING DOWN (DAB) STATION DOWN (AVR-X1700H DAB only)
RCKSK0410146	0	1	0	0	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET CH UP
RCKSK0410147	1	1	0	0	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PRESET CH DOWN
RCKSK0410152	0	0	0	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	BAND FM/AM BAND FM/DAB (AVR-X2700H DAB only)
RCKSK0410153	1	0	0	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	BAND FM
RCKSK0410154	0	1	0	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	BAND AM
RCKSK0410155	1	1	0	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	BAND DAB (AVR-X2700H DAB only)
RCKSK0410156	0	0	1	1	1	0	0	1	0	0	*	*	*	*	*	*	*	*	*	*	MODE AUTO/MANUAL
RCKSK0410160	0	0	0	0	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	MEMORY
RCKSK0410163	1	1	0	0	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	RDS (AVR-X1700H/S760H EU only) /DIRECT FREQ. SEARCH
RCKSK0410166	0	1	1	0	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	RT(AVR-X1700H/S760H EU only)
RCKSK0410169	1	0	0	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	PTY(AVR-X1700H/S760H EU only)
RCKSK0410170	0	1	0	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR UP
RCKSK0410171	1	1	0	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR DOWN
RCKSK0410173	1	0	1	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR LEFT
RCKSK0410174	0	1	1	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR RIGHT
RCKSK0410175	1	1	1	1	0	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR ENTER
RCKSK0410176	0	0	0	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 1
RCKSK0410177	1	0	0	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 2
RCKSK0410178	0	1	0	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 3
RCKSK0410179	1	1	0	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 4
RCKSK0410180	0	0	1	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 5
RCKSK0410181	1	0	1	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 6
RCKSK0410182	0	1	1	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 7
RCKSK0410183	1	1	1	0	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 8
RCKSK0410184	0	0	0	1	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 9
RCKSK0410185	1	0	0	1	1	1	0	1	0	0	*	*	*	*	*	*	*	*	*	*	Numeric 0
RCKSK0410241	1	0	0	0	1	1	1	1	0	0	*	*	*	*	*	*	*	*	*	*	RETURN

HEOS MUSIC

REMOTE ID SET: 1

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				7			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1	1	1	0

REMOTE ID SET: 2-4

DENON CODE																Parity				GENRE1				GENRE2			
4				5				2				3				0				4				8			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1

No.	Data										ID		parity								Key Name
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
RCKSK0470027	1	1	0	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR UP
RCKSK0470028	0	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR DOWN
RCKSK0470029	1	0	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR LEFT
RCKSK0470030	0	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	CURSOR RIGHT
RCKSK0470031	1	1	1	1	1	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	ENTER
RCKSK0470034	0	1	0	0	0	1	0	0	0	0	*	*	*	*	*	*	*	*	*	*	RETURN
RCKSK0470773	1	0	1	0	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	PLAY
RCKSK0470774	0	1	1	0	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	PAUSE
RCKSK0470775	1	1	1	0	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	STOP
RCKSK0470776	0	0	0	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	SKIP PLUS
RCKSK0470777	1	0	0	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	SKIP MINUS
RCKSK0470778	0	1	0	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	REPEAT ONE
RCKSK0470779	1	1	0	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	REPEAT OFF
RCKSK0470780	0	0	1	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	RANDOM ON
RCKSK0470781	1	0	1	1	0	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	RANDOM OFF
RCKSK0470785	1	0	0	0	1	0	0	0	1	1	*	*	*	*	*	*	*	*	*	*	REPEAT ALL

MECHANICAL

DISASSEMBLY

Flowchart
1. FRONT PANEL ASSY
2. DIGITAL PCB
3. RADIATOR ASSY
4. SMPS PCB
5. REGULATOR PCB
6. POWER TRANS

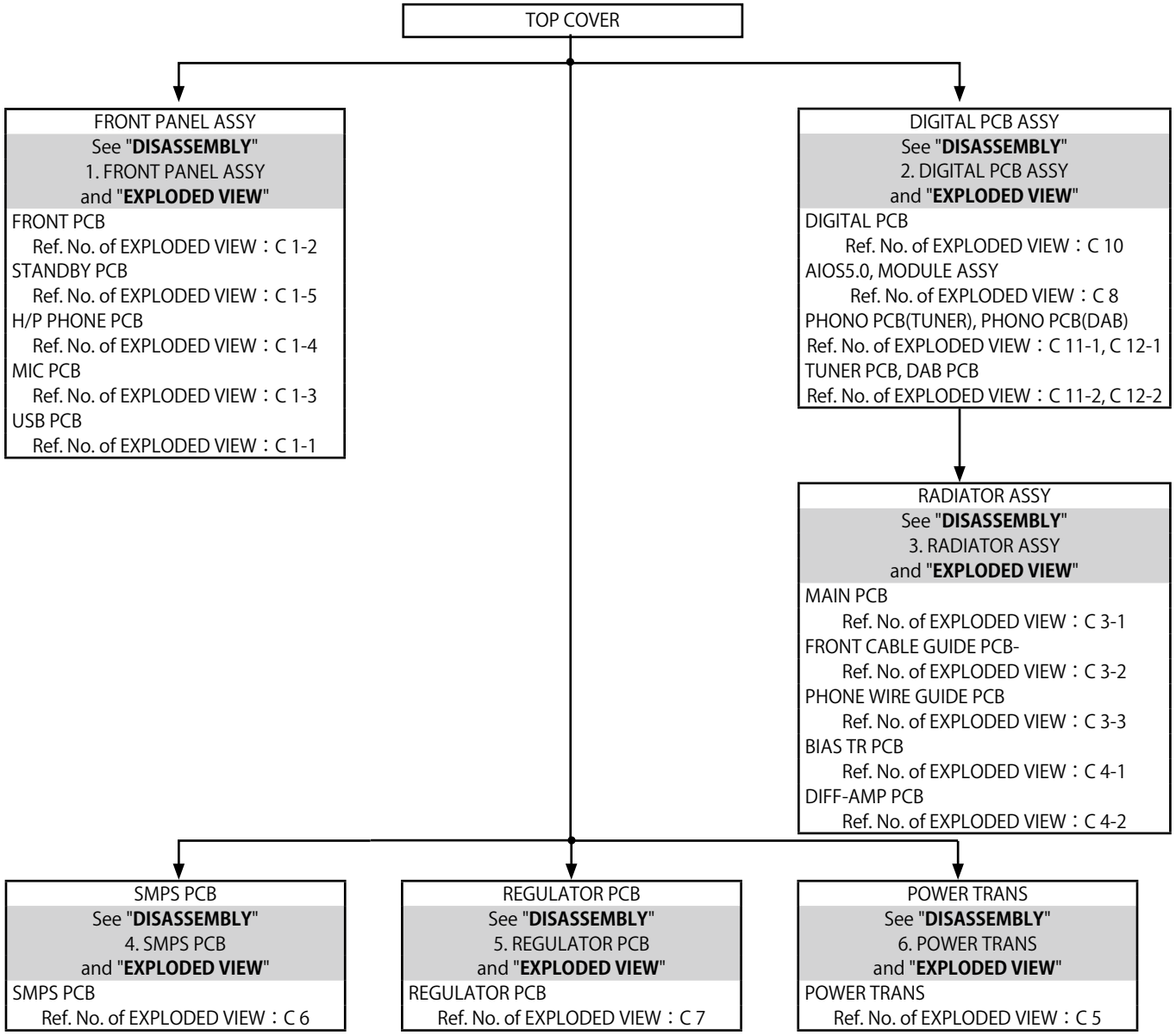
EXPLODED VIEW

PACKAGING VIEW

DISASSEMBLY

Flowchart

- Remove each part following the flow below.
- Reassemble the removed parts in the reverse order.
- Read "SAFETY PRECAUTIONS" before reassembling the removed parts.
- If wire bundles are removed or moved during adjustment or part replacement, reshape the wires after completing the work. Failure to shape the wires correctly may cause problems such as noise.
- See"EXPLODED VIEW"


TOP COVER
FRONT PANEL ASSY
See "DISASSEMBLY"
1. FRONT PANEL ASSY
and "EXPLODED VIEW"
FRONT PCB
Ref. No. of EXPLODED VIEW : C 1-2
STANDBY PCB
Ref. No. of EXPLODED VIEW : C 1-5
H/P PHONE PCB
Ref. No. of EXPLODED VIEW : C 1-4
MIC PCB
Ref. No. of EXPLODED VIEW : C 1-3
USB PCB
Ref. No. of EXPLODED VIEW : C 1-1
DIGITAL PCB ASSY
See "DISASSEMBLY"
2. DIGITAL PCB ASSY
and "EXPLODED VIEW"
DIGITAL PCB
Ref. No. of EXPLODED VIEW : C 10
AIOS5.0, MODULE ASSY
Ref. No. of EXPLODED VIEW : C 8
PHONO PCB(TUNER), PHONO PCB(DAB)
Ref. No. of EXPLODED VIEW : C 11-1, C 12-1
TUNER PCB, DAB PCB
Ref. No. of EXPLODED VIEW : C 11-2, C 12-2
RADIATOR ASSY
See "DISASSEMBLY"
3. RADIATOR ASSY
and "EXPLODED VIEW"
MAIN PCB
Ref. No. of EXPLODED VIEW : C 3-1
FRONT CABLE GUIDE PCB-
Ref. No. of EXPLODED VIEW : C 3-2
PHONE WIRE GUIDE PCB
Ref. No. of EXPLODED VIEW : C 3-3
BIAS TR PCB
Ref. No. of EXPLODED VIEW : C 4-1
DIFF-AMP PCB
Ref. No. of EXPLODED VIEW : C 4-2
SMPS PCB
See "DISASSEMBLY"
4. SMPS PCB
and "EXPLODED VIEW"
SMPS PCB
Ref. No. of EXPLODED VIEW : C 6
REGULATOR PCB
See "DISASSEMBLY"
5. REGULATOR PCB
and "EXPLODED VIEW"
REGULATOR PCB
Ref. No. of EXPLODED VIEW : C 7
POWER TRANS
See "DISASSEMBLY"
6. POWER TRANS
and "EXPLODED VIEW"
POWER TRANS
Ref. No. of EXPLODED VIEW : C 5

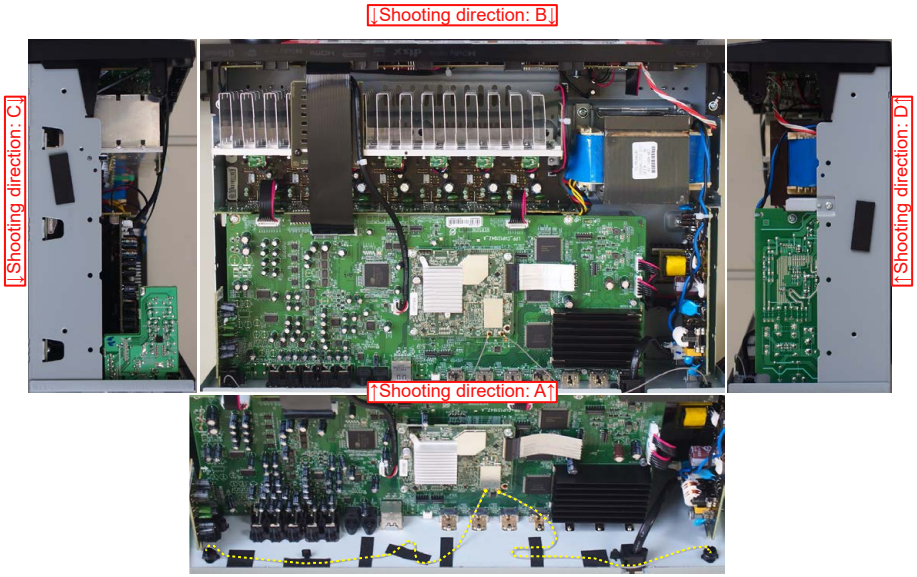
Explanatory Photos for DISASSEMBLY

- For the shooting direction of each photos used in this manual, see the photo below.
- **A, B, C and D** in the photo below indicate the shooting directions of photos.
- The photographs with no shooting direction indicated were taken from the top of the unit.

• Photos of AVR-S760H E3 are used in this manual.

The viewpoint of each photograph

(Shooting direction : X) [View from the top]

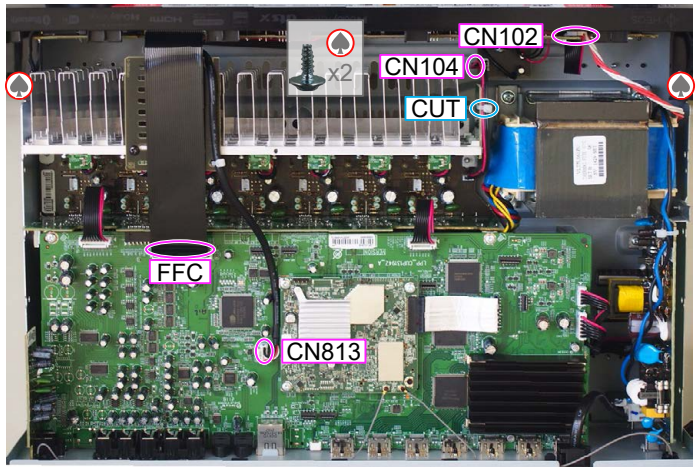


1. FRONT PANEL ASSY

Proceeding : TOP COVER → FRONT PANEL ASSY

(1) Remove the screws.

(2) Remove the screws. Cut the wire clamp, then remove the connector.
Remove the FFC.

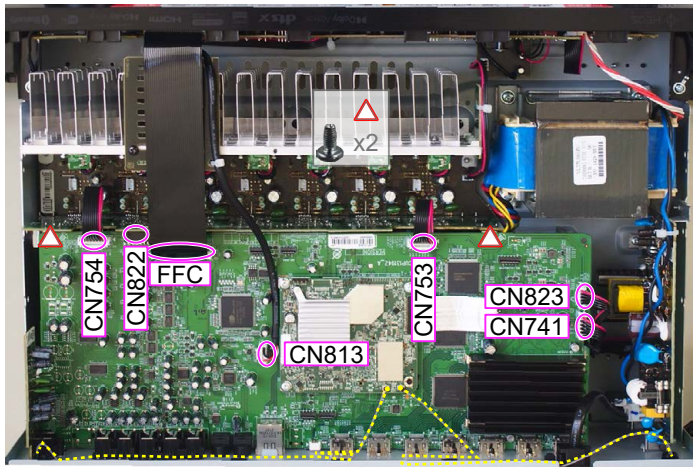


2. DIGITAL PCB

Proceeding : TOP COVER → DIGITAL PCB

(1) Remove the screws.

(2) Remove the screws. Remove the FFC. Remove the connector.

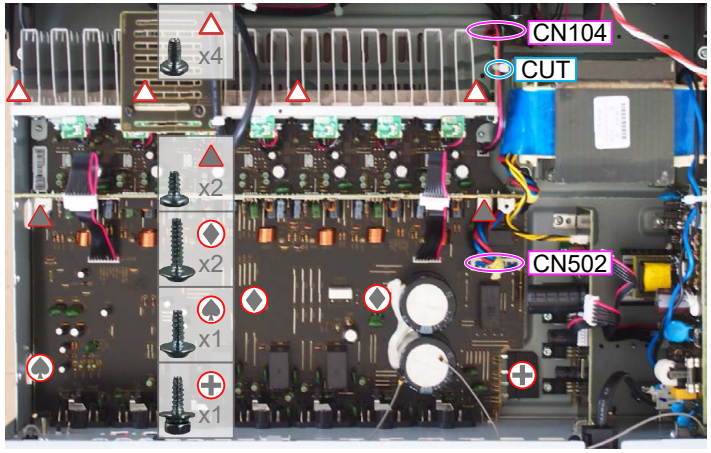


3. RADIATOR ASSY

Proceeding : TOP COVER → DIGITAL PCB → RADIATOR ASSY

(1) Remove the screws.

(2) Remove the screws. Cut the wire clamp, then remove the connector.



4. SMPS PCB

Proceeding : TOP COVER → SMPS PCB

See "EXPLODED VIEW" for instructions on removing the SMPS PCB.

5. REGULATOR PCB

Proceeding : TOP COVER → REGULATOR PCB

See "EXPLODED VIEW" for instructions on removing the REGULATOR PCB.

6. POWER TRANS

Proceeding : TOP COVER → POWER TRANS

See "EXPLODED VIEW" for instructions on removing the transformer (TRANS).

EXPLODED VIEW

AVR-X1700H Parts List : https://dmedia.soundunited.com/documents/details/28727

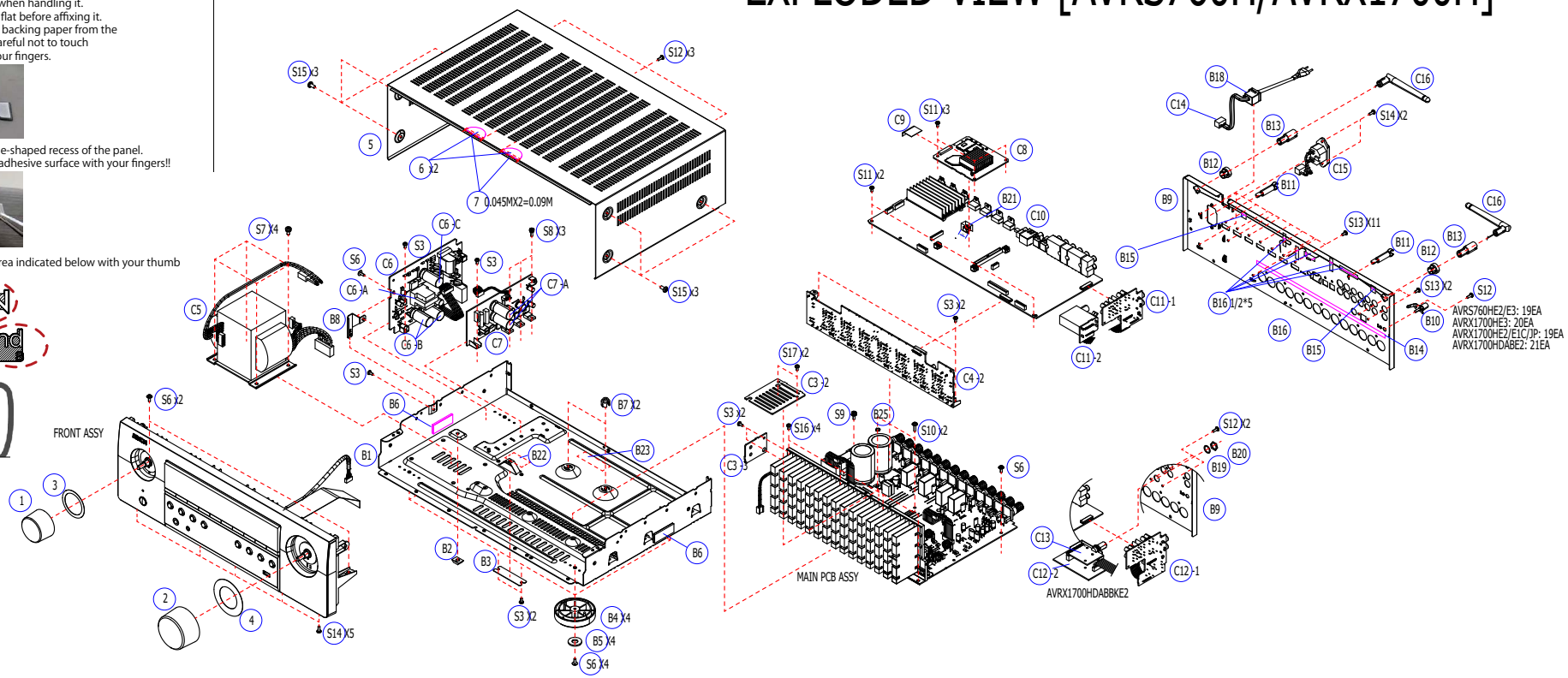
AVR-S760H Parts List : https://dmedia.soundunited.com/documents/details/28728

Precautions when affixing the BADGE
(1) The BADGE is incredibly fragile, so using the same force as you would when applying a label is likely to cause deformation. Once deformed it is very difficult to return it to its original shape, so take care when handling it.
(2) Make sure the BADGE is not flat before affixing it.
(3) Use tweezers to remove the backing paper from the double-sided tape and be careful not to touch the adhesive surface with your fingers.

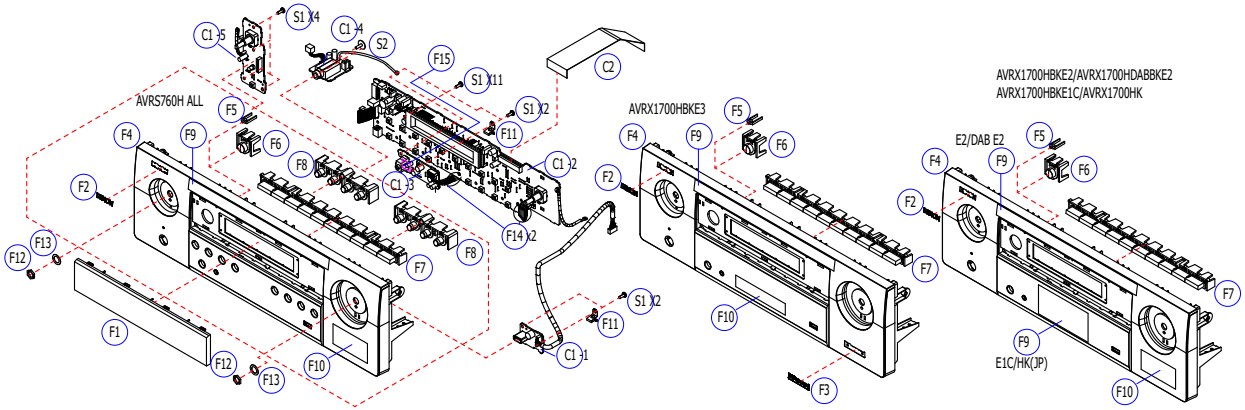
(4) Place the badge in the badge-shaped recess of the panel.
Caution : Do not touch the adhesive surface with your fingers!!

(5) To affix, press each circled area indicated below with your thumb for at least 2 seconds.

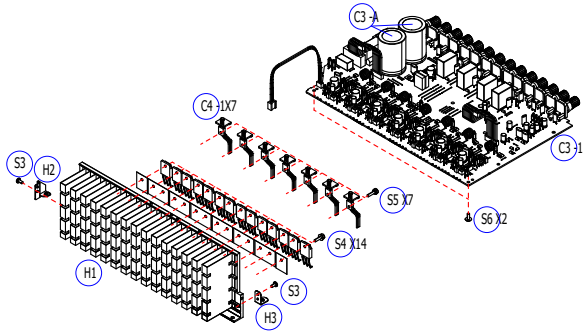
EXPLODED VIEW [AVRS760H/AVRX1700H]



FRONT ASSY



MAIN PCB ASSY



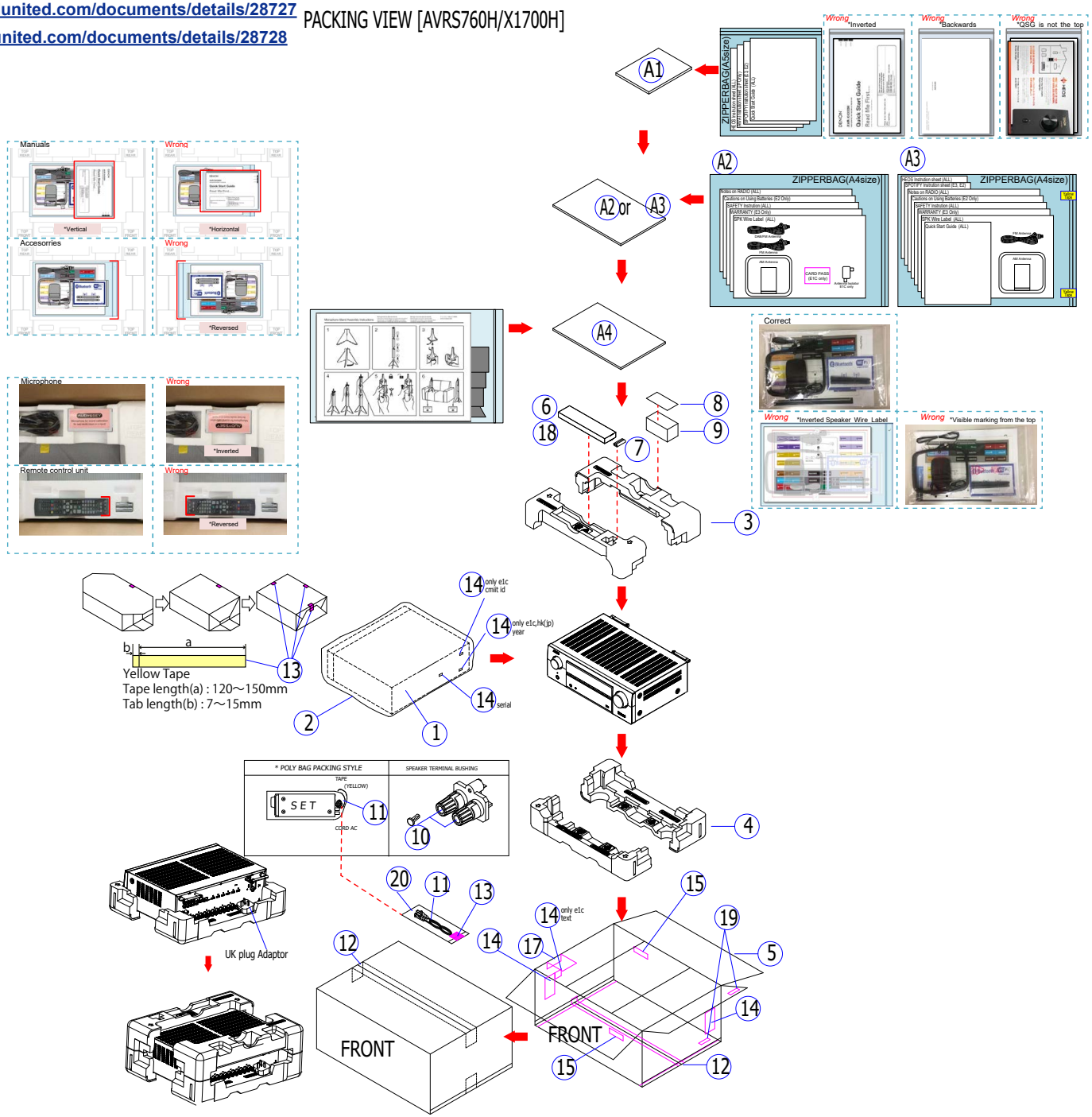
WARNING:
Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

PACKAGING VIEW

AVR-X1700H Parts List : https://dmedia.soundunited.com/documents/details/28727

AVR-S760H Parts List : https://dmedia.soundunited.com/documents/details/28728

PACKING VIEW [AVRS760H/X1700H]



REPAIR INFORMATION

TROUBLE SHOOTING

1. POWER
2. Analog video
3. HDMI/DVI
4. AUDIO
5. Network / Bluetooth / USB
6. SMPS

HDMI "Rx/Tx" Failure Detection

1. Prior checking
2. Preparations for checking HDMI Switcher reception/transmission register
3. Starting detecting the point of failure
4. Device implementation location

CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

SPECIAL MODE

Special mode setting button AVR-X1700H
Special mode setting button AVR-S760H
1. Version Display Mode
2. PANEL / REMOTE LOCK Selection Mode
3-1. Selecting the Mode for Service-related
3-2. Protection History Display Mode
3-3. Operation Info Mode
3-4. TUNER STEP mode (E3 / E2 only, Except DABE2)
3-5. Remote ID Setup Mode
4. Protection Pass Mode
5. Network Initialization Mode
6. Clearing the Operation Info
7. Log Capture feature
8. Protection popups

DIAGNOSTIC MODE

Service Path Check Mode
DIAGNOSTIC PATH DIAGRAM

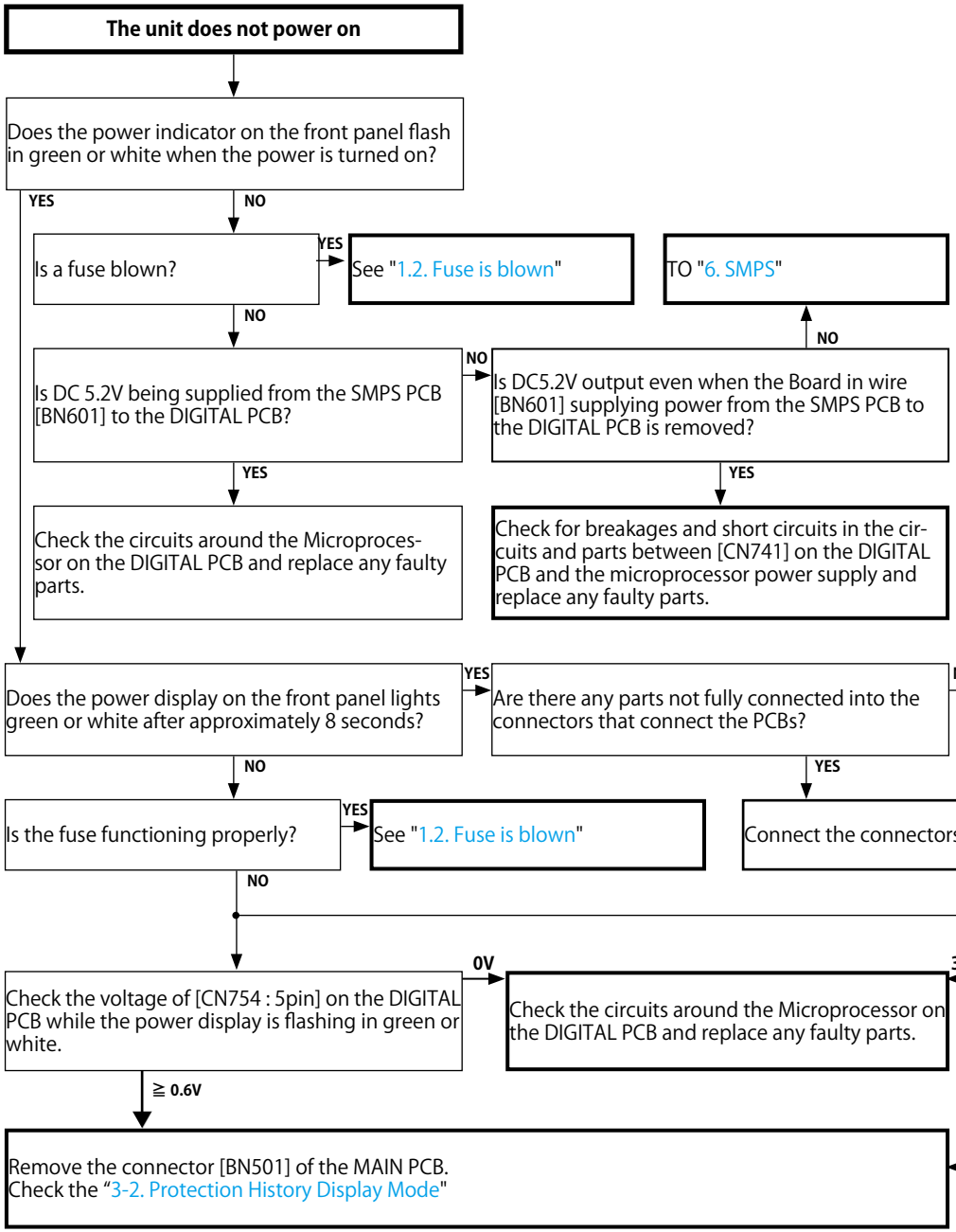
JIG FOR SERVICING

IDLING CURRENT CHECK for E3, E1C, S760 model

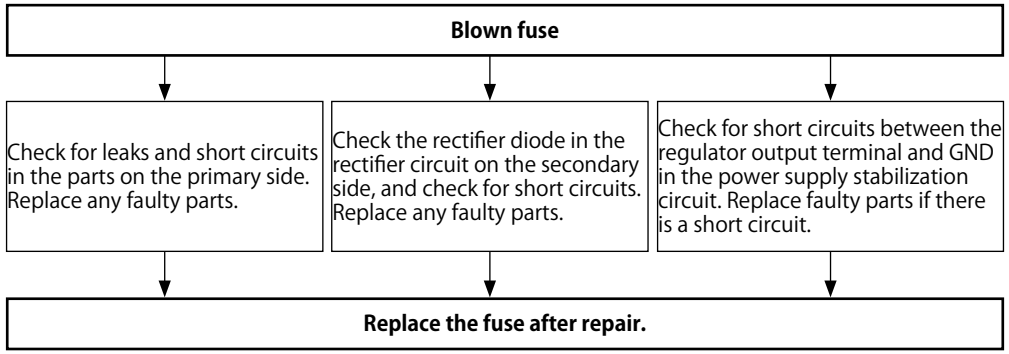
ADJUSTMENT for E2, JP model

1. POWER

1.1. he unit does not power on


The unit does not power on
Does the power indicator on the front panel flash in green or white when the power is turned on?
YES
NO
Is a fuse blown?
YES
See "1.2. Fuse is blown"
NO
Is DC 5.2V being supplied from the SMPS PCB [BN601] to the DIGITAL PCB?
NO
Is DC5.2V output even when the Board in wire [BN601] supplying power from the SMPS PCB to the DIGITAL PCB is removed?
YES
TO "6. SMPS"
NO
YES
Check the circuits around the Microprocessor on the DIGITAL PCB and replace any faulty parts.
YES
Check for breakages and short circuits in the circuits and parts between [CN741] on the DIGITAL PCB and the microprocessor power supply and replace any faulty parts.
Does the power display on the front panel lights green or white after approximately 8 seconds?
YES
Are there any parts not fully connected into the connectors that connect the PCBs?
NO
TO "3-2. Protection History Display Mode"
NO
YES
Is the fuse functioning properly?
YES
See "1.2. Fuse is blown"
Connect the connectors correctly.
NO
Check the voltage of [CN754 : 5pin] on the DIGITAL PCB while the power display is flashing in green or white.
0V
Check the circuits around the Microprocessor on the DIGITAL PCB and replace any faulty parts.
3.3V
Check the voltage of pins 7 of [CN754] on the DIGITAL PCB while the power display is flashing in green or white.
0V
≧ 0.6V
Remove the connector [BN501] of the MAIN PCB.
Check the "3-2. Protection History Display Mode"

1.2. Fuse is blown


Blown fuse
Check for leaks and short circuits in the parts on the primary side. Replace any faulty parts.
Check the rectifier diode in the rectifier circuit on the secondary side, and check for short circuits. Replace any faulty parts.
Check for short circuits between the regulator output terminal and GND in the power supply stabilization circuit. Replace faulty parts if there is a short circuit.
Replace the fuse after repair.

2. Analog video

MONITOR OUT (CVBS) output NG

↓

Is the power voltage being output correctly?
CEC5V : [C8814 : +side]

NO → The power supply circuit is faulty.

↓ YES

Is a signal being output from the video amplifier?
Output V : [IC881 : 8pin]

NO → Does the signal input to the video amplifier?
(for SAT/CBL function)
VIN3 : [IC881 : 5pin]

NO → Check the pattern between [JK881] and [IC881], and then check the Blu-ray/DVD player or the cable between the unit and the Blu-ray/DVD player.

↓ YES

Check the cable between the unit and the monitor or check the monitor.

↓ YES

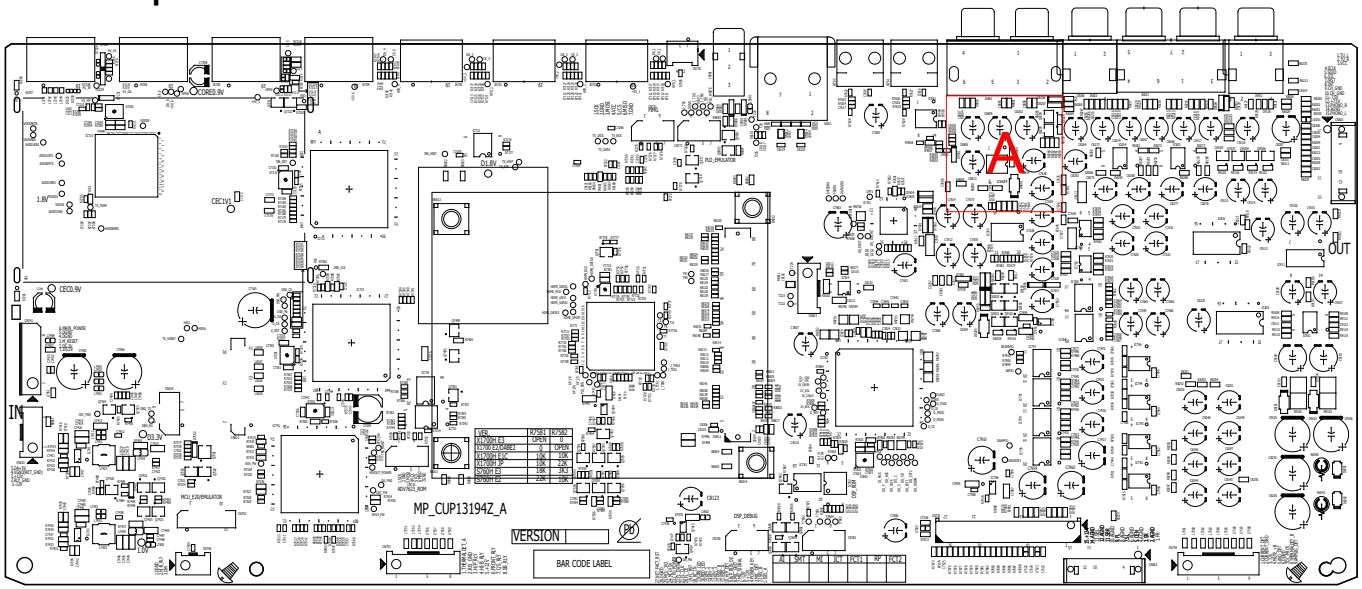
Check the settings of each IC. Are the following voltages set?
SW2 : [IC881_4pin] : 3.3V
MUTE : [IC881_6pin] : 3.3V

NO → The CPU [IC751] is faulty.

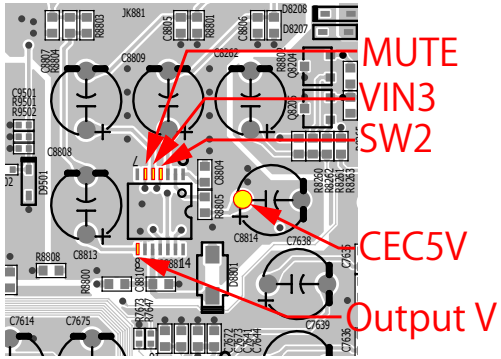
↓ YES

The circuit around [IC881] is faulty.

VIDEO test point

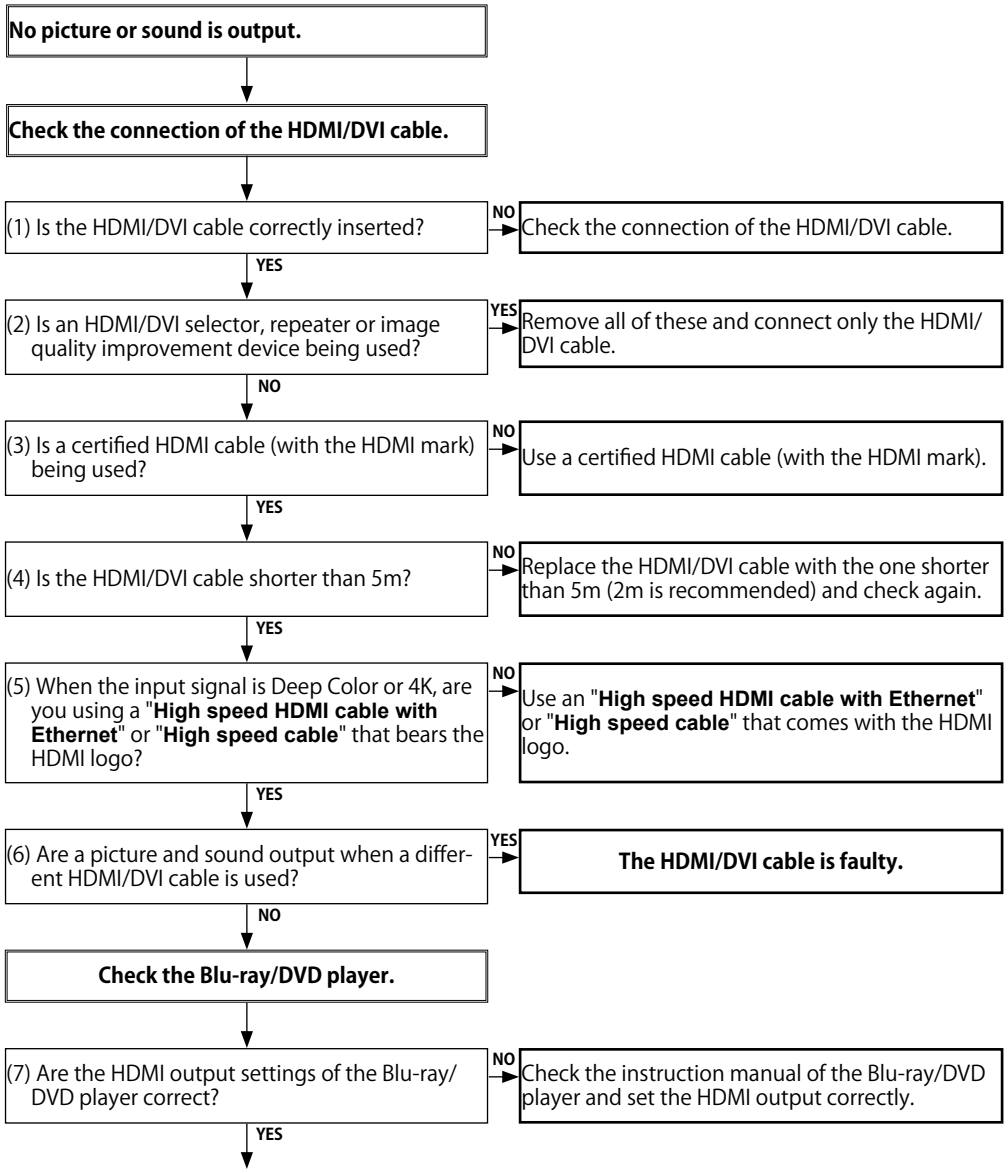


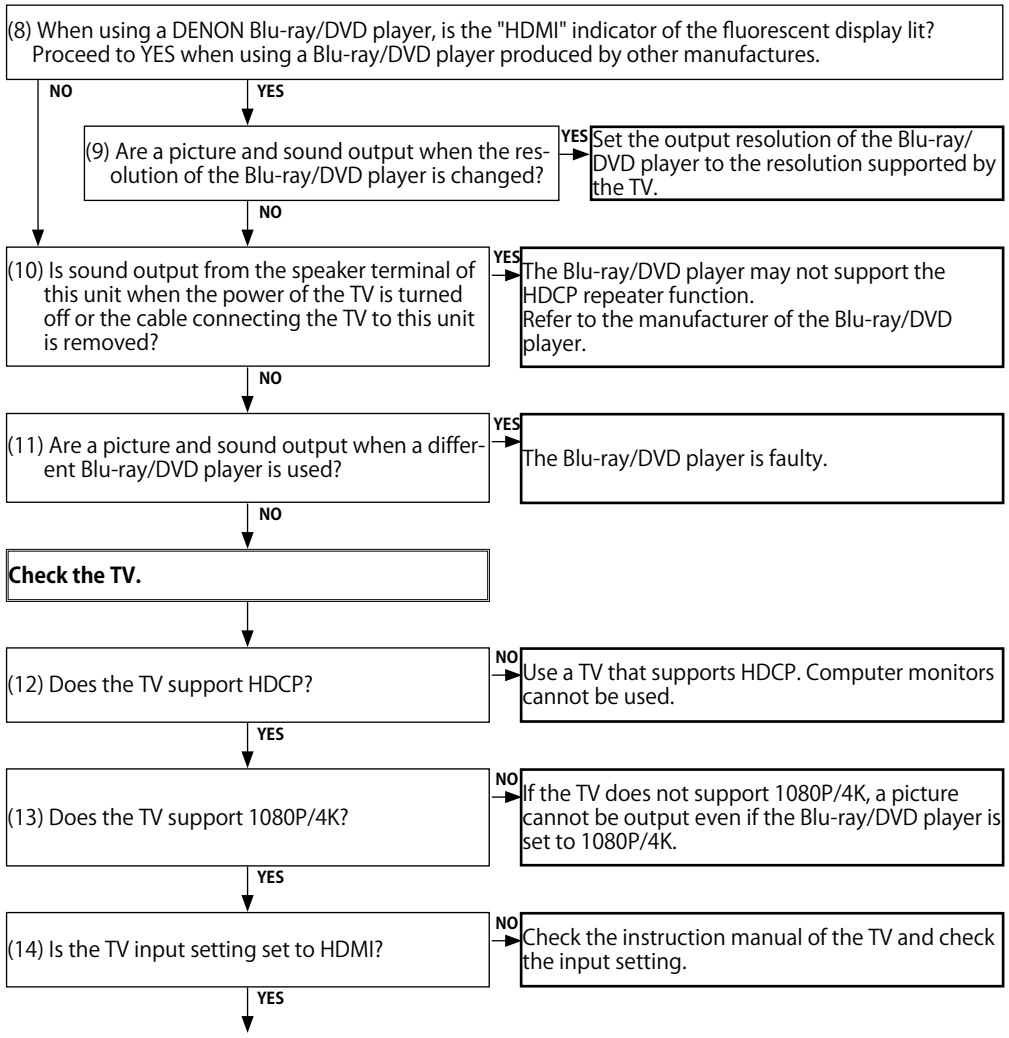
DIGITAL (A Side)



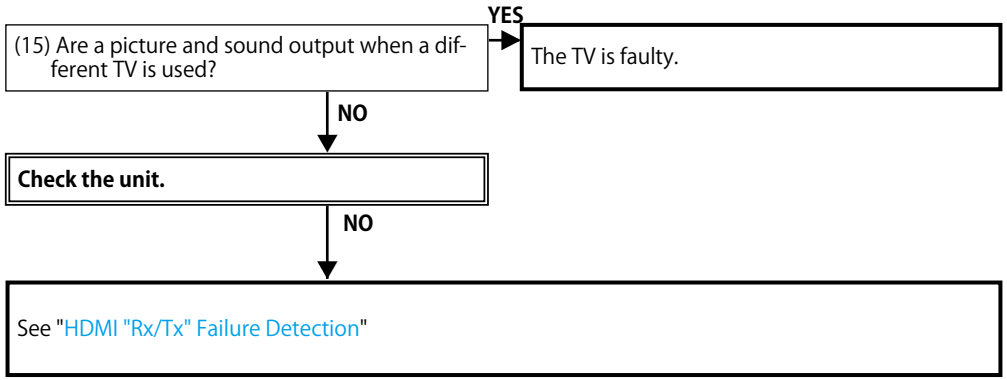
3. HDMI/DVI

3.1. No picture or sound is output (HDMI to HDMI)

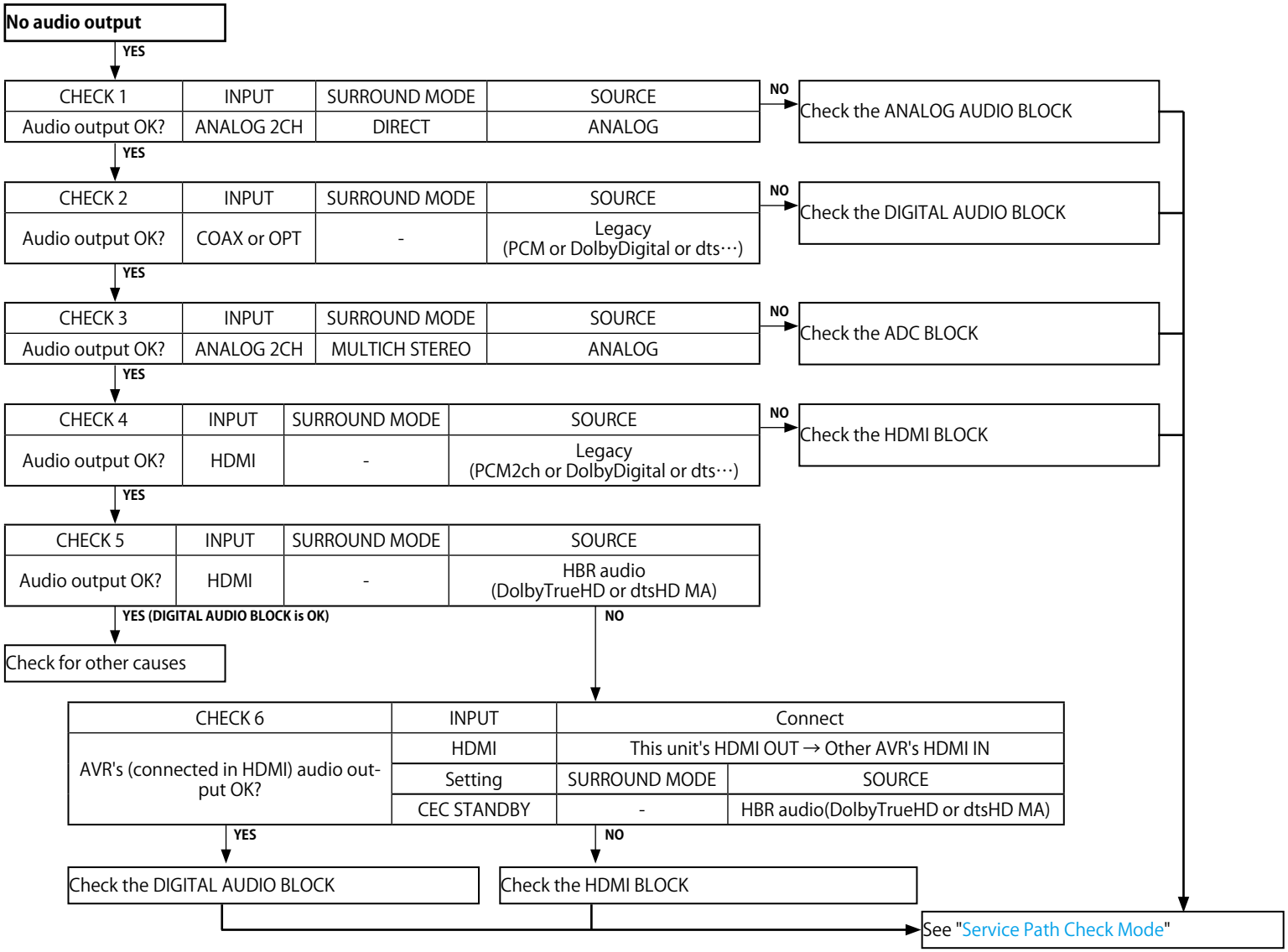

No picture or sound is output.
Check the connection of the HDMI/DVI cable.
(1) Is the HDMI/DVI cable correctly inserted?
NO
Check the connection of the HDMI/DVI cable.
YES
(2) Is an HDMI/DVI selector, repeater or image quality improvement device being used?
YES
Remove all of these and connect only the HDMI/DVI cable.
NO
(3) Is a certified HDMI cable (with the HDMI mark) being used?
NO
Use a certified HDMI cable (with the HDMI mark).
YES
(4) Is the HDMI/DVI cable shorter than 5m?
NO
Replace the HDMI/DVI cable with the one shorter than 5m (2m is recommended) and check again.
YES
(5) When the input signal is Deep Color or 4K, are you using a "High speed HDMI cable with Ethernet" or "High speed cable" that bears the HDMI logo?
NO
Use an "High speed HDMI cable with Ethernet" or "High speed cable" that comes with the HDMI logo.
YES
(6) Are a picture and sound output when a different HDMI/DVI cable is used?
YES
The HDMI/DVI cable is faulty.
NO
Check the Blu-ray/DVD player.
(7) Are the HDMI output settings of the Blu-ray/DVD player correct?
NO
Check the instruction manual of the Blu-ray/DVD player and set the HDMI output correctly.
YES


(8) When using a DENON Blu-ray/DVD player, is the "HDMI" indicator of the fluorescent display lit? Proceed to YES when using a Blu-ray/DVD player produced by other manufactures.
NO
YES
(9) Are a picture and sound output when the resolution of the Blu-ray/DVD player is changed?
YES
Set the output resolution of the Blu-ray/DVD player to the resolution supported by the TV.
NO
(10) Is sound output from the speaker terminal of this unit when the power of the TV is turned off or the cable connecting the TV to this unit is removed?
YES
The Blu-ray/DVD player may not support the HDCP repeater function.
Refer to the manufacturer of the Blu-ray/DVD player.
NO
(11) Are a picture and sound output when a different Blu-ray/DVD player is used?
YES
The Blu-ray/DVD player is faulty.
NO
Check the TV.
(12) Does the TV support HDCP?
NO
Use a TV that supports HDCP. Computer monitors cannot be used.
YES
(13) Does the TV support 1080P/4K?
NO
If the TV does not support 1080P/4K, a picture cannot be output even if the Blu-ray/DVD player is set to 1080P/4K.
YES
(14) Is the TV input setting set to HDMI?
NO
Check the instruction manual of the TV and check the input setting.
YES

Go to next page.

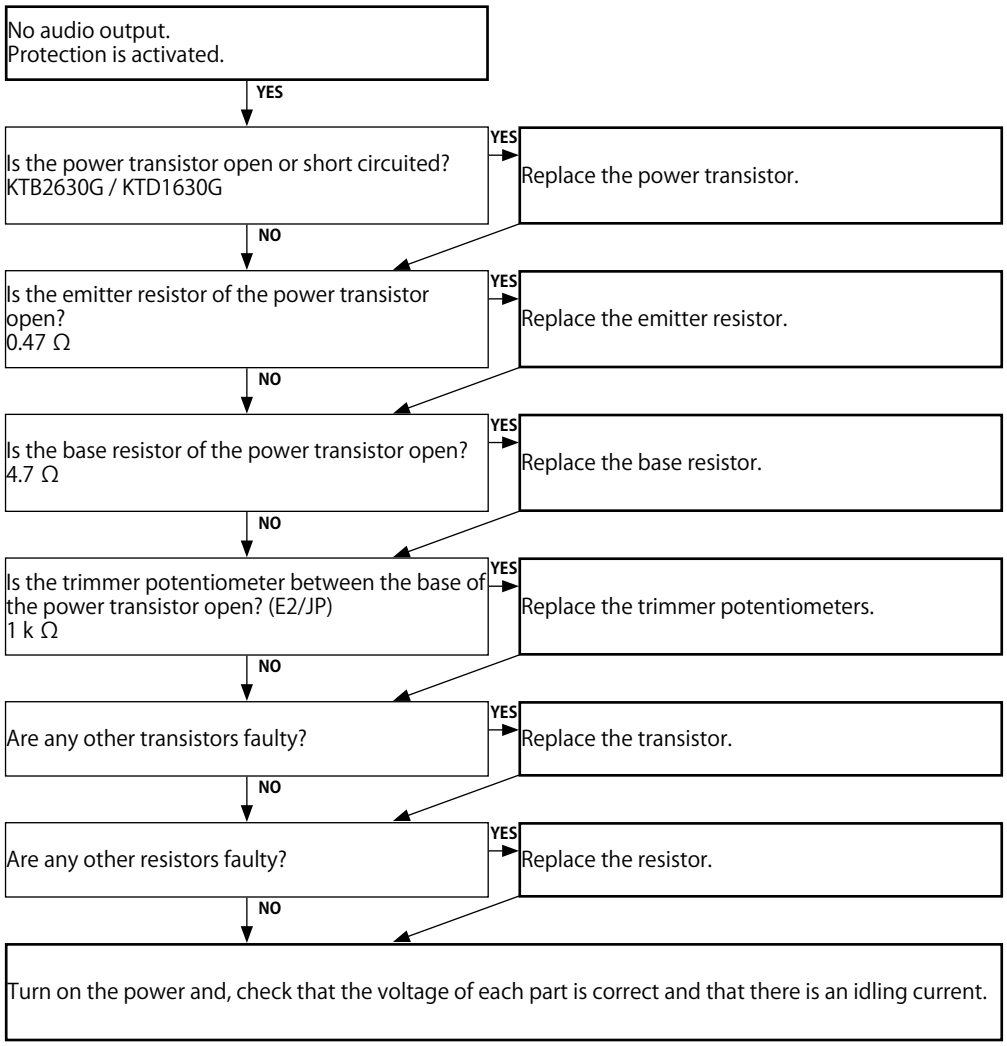

(15) Are a picture and sound output when a different TV is used?
YES
The TV is faulty.
NO
Check the unit.
NO
See "HDMI "Rx/Tx" Failure Detection"

4.1. AUDIO CHECK

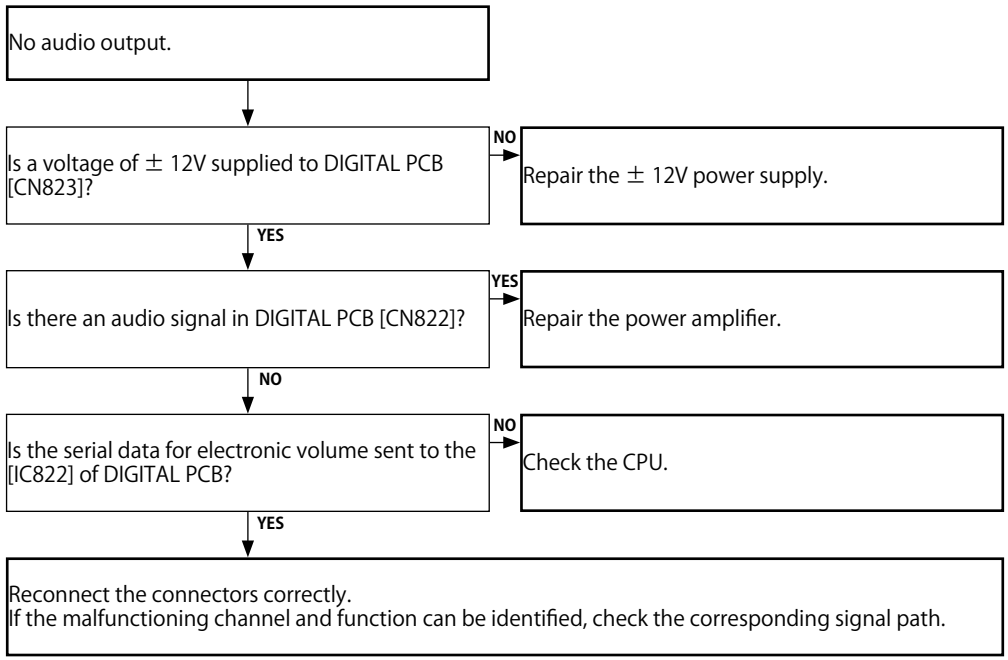

No audio output
YES
CHECK 1 | INPUT | SURROUND MODE | SOURCE
Audio output OK? | ANALOG 2CH | DIRECT | ANALOG
NO
Check the ANALOG AUDIO BLOCK
YES
CHECK 2 | INPUT | SURROUND MODE | SOURCE
Audio output OK? | COAX or OPT | - | Legacy (PCM or DolbyDigital or dts···)
NO
Check the DIGITAL AUDIO BLOCK
YES
CHECK 3 | INPUT | SURROUND MODE | SOURCE
Audio output OK? | ANALOG 2CH | MULTICH STEREO | ANALOG
NO
Check the ADC BLOCK
YES
CHECK 4 | INPUT | SURROUND MODE | SOURCE
Audio output OK? | HDMI | - | Legacy (PCM2ch or DolbyDigital or dts···)
NO
Check the HDMI BLOCK
YES
CHECK 5 | INPUT | SURROUND MODE | SOURCE
Audio output OK? | HDMI | - | HBR audio (DolbyTrueHD or dtsHD MA)
YES (DIGITAL AUDIO BLOCK is OK)
Check for other causes
NO
CHECK 6 | INPUT | Connect
AVR's (connected in HDMI) audio output OK?
HDMI | This unit's HDMI OUT → Other AVR's HDMI IN
Setting | SURROUND MODE | SOURCE
CEC STANDBY | - | HBR audio(DolbyTrueHD or dtsHD MA)
YES
Check the DIGITAL AUDIO BLOCK
NO
Check the HDMI BLOCK
See "Service Path Check Mode"

4.2. Power AMP (AMP PCB)

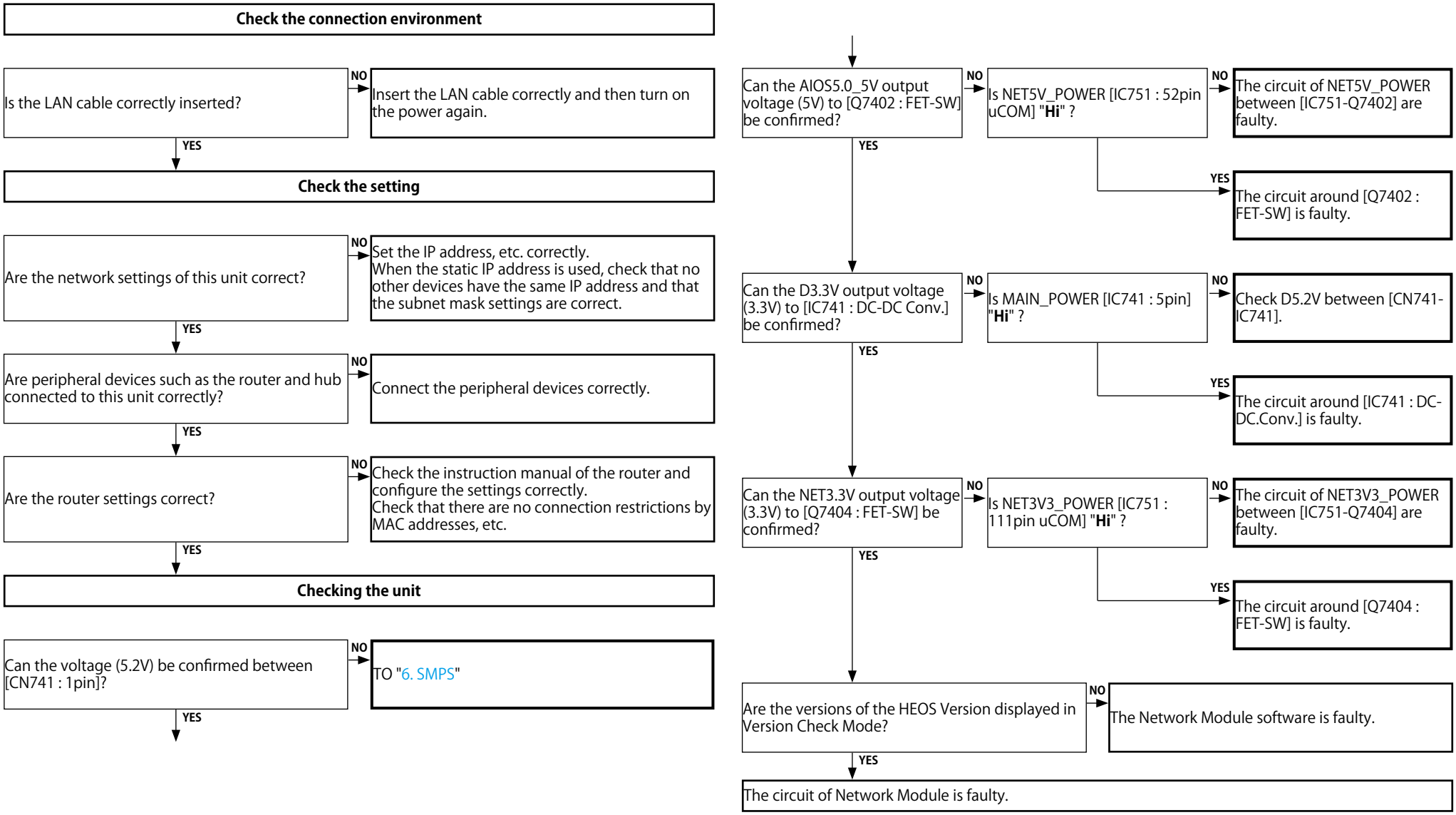
When using the protection pass mode, do not connect speakers to the speaker terminals.



4.3. Analog audio


No audio output.
Is a voltage of ± 12V supplied to DIGITAL PCB [CN823]?
NO
Repair the ± 12V power supply.
YES
Is there an audio signal in DIGITAL PCB [CN822]?
YES
Repair the power amplifier.
NO
Is the serial data for electronic volume sent to the [IC822] of DIGITAL PCB?
NO
Check the CPU.
YES
Reconnect the connectors correctly.
If the malfunctioning channel and function can be identified, check the corresponding signal path.

5.1. Cannot connect to the network


Check the connection environment
Is the LAN cable correctly inserted?
NO
Insert the LAN cable correctly and then turn on the power again.
YES
Check the setting
Are the network settings of this unit correct?
NO
Set the IP address, etc. correctly.
When the static IP address is used, check that no other devices have the same IP address and that the subnet mask settings are correct.
YES
Are peripheral devices such as the router and hub connected to this unit correctly?
NO
Connect the peripheral devices correctly.
YES
Are the router settings correct?
NO
Check the instruction manual of the router and configure the settings correctly.
Check that there are no connection restrictions by MAC addresses, etc.
YES
Checking the unit
Can the voltage (5.2V) be confirmed between [CN741 : 1pin]?
NO
TO "6. SMPS"
YES
Can the AIOS5.0_5V output voltage (5V) to [Q7402 : FET-SW] be confirmed?
NO
Is NET5V_POWER [IC751 : 52pin uCOM] "Hi" ?
NO
The circuit of NET5V_POWER between [IC751-Q7402] are faulty.
YES
The circuit around [Q7402 : FET-SW] is faulty.
YES
Can the D3.3V output voltage (3.3V) to [IC741 : DC-DC Conv.] be confirmed?
NO
Is MAIN_POWER [IC741 : 5pin] "Hi" ?
NO
Check D5.2V between [CN741-IC741].
YES
The circuit around [IC741 : DC-DC.Conv.] is faulty.
YES
Can the NET3.3V output voltage (3.3V) to [Q7404 : FET-SW] be confirmed?
NO
Is NET3V3_POWER [IC751 : 111pin uCOM] "Hi" ?
NO
The circuit of NET3V3_POWER between [IC751-Q7404] are faulty.
YES
The circuit around [Q7404 : FET-SW] is faulty.
YES
Are the versions of the HEOS Version displayed in Version Check Mode?
NO
The Network Module software is faulty.
YES
The circuit of Network Module is faulty.

5.2. Cannot establish a Bluetooth connection

Check the Bluetooth device being used

Is the Bluetooth device compatible with the A2DP profile?
- NO → Use a device that is A2DP profile compatible.
- YES ↓

Is the Bluetooth function enabled on the Bluetooth device?
- NO → Enable the Bluetooth function and try connecting again.
- YES ↓

Checking the unit

Is the antenna cable inserted correctly into Network Module?
- NO → Connect the antenna cable correctly.
- YES ↓

In the same way as for Network connection troubleshooting, check the Network Module power supply and HEOS Version is displayed correctly.

5.3. Cannot recognize the connected USB device

Check the USB device being used

Is a USB hub being used?
- YES → Do not use a USB hub.
- NO ↓

Is the USB device supported by this unit?
- NO → Supports mass storage class and MTP-compatible devices formatted to FAT16, FAT32 or NTFS.
- YES ↓

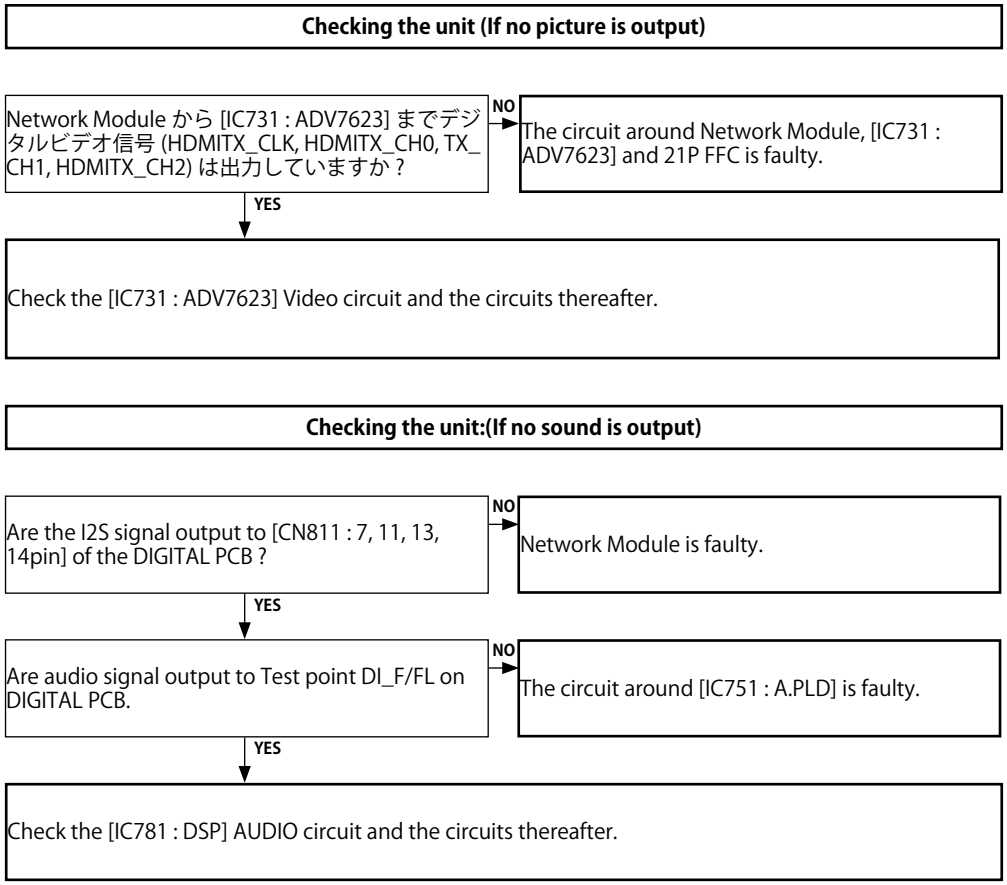
Checking the unit

Are [CN813] of the DIGITAL PCB and [BN104] of the USB PCB correctly connected?
- NO → Connect the connectors correctly.
- YES ↓

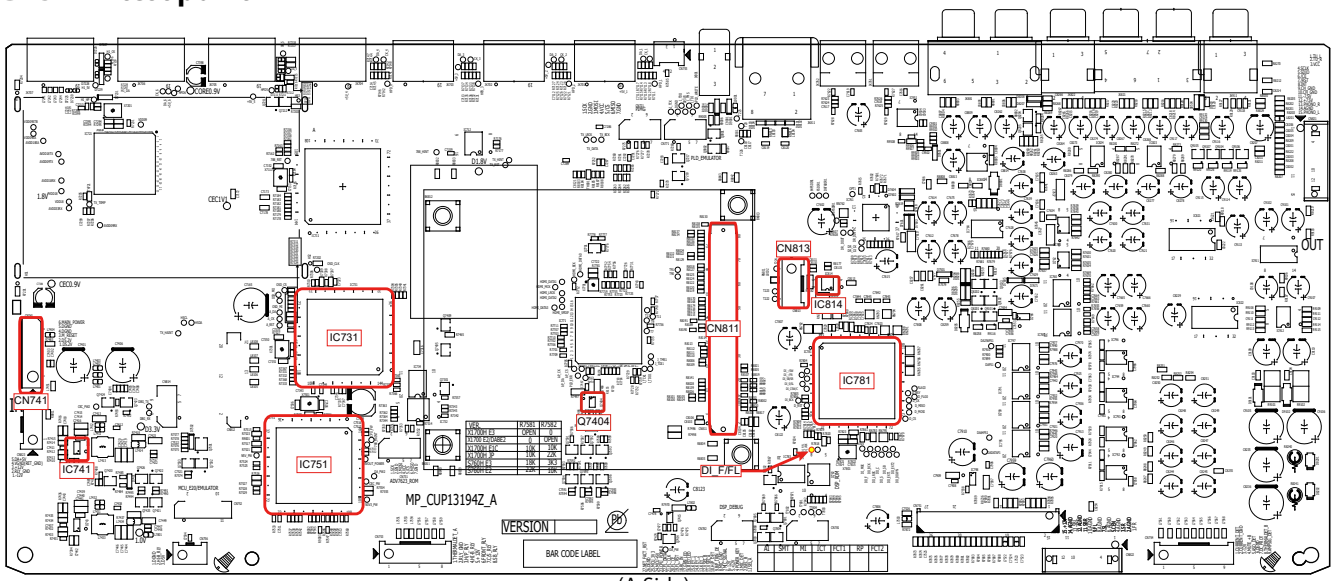
Can the voltage of the USB PCB (5V) be confirmed? [JK101 : 1pin]
- NO → The circuit around [IC814] of the DIGITAL PCB is faulty.
- YES ↓

The USB signal circuit between Network Module and [JK101] of the USB PCB are faulty.

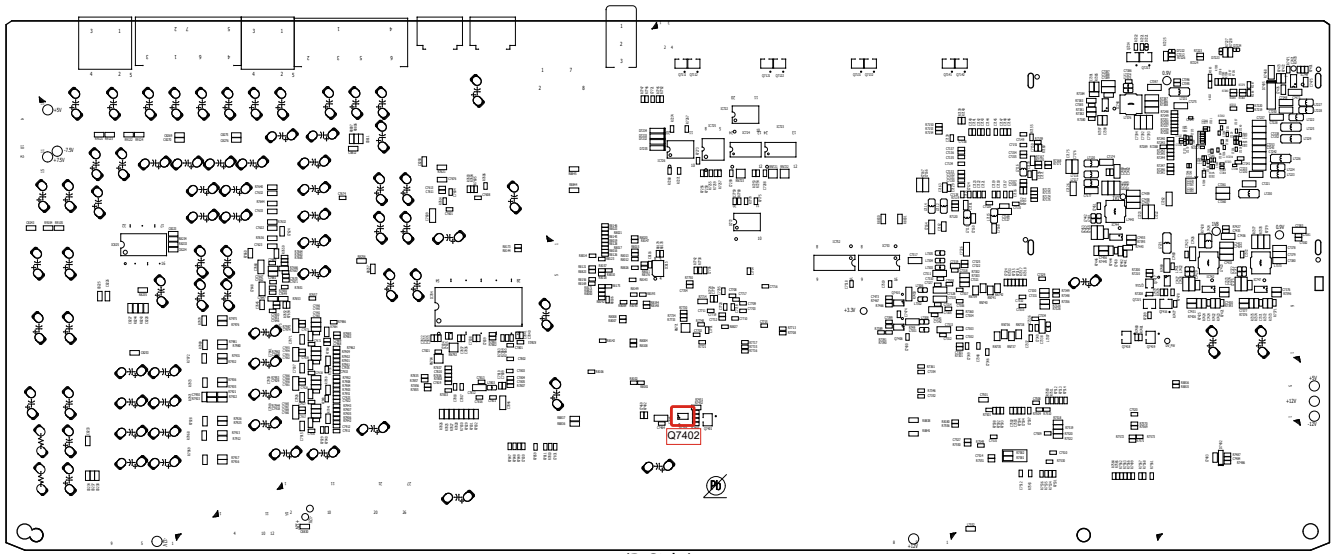
5.4. No picture or sound is output


Checking the unit (If no picture is output)
Network Module から [IC731 : ADV7623] までデジタルビデオ信号 (HDMITX_CLK, HDMITX_CH0, TX_CH1, HDMITX_CH2) は出力していますか ?
NO
The circuit around Network Module, [IC731 : ADV7623] and 21P FFC is faulty.
YES
Check the [IC731 : ADV7623] Video circuit and the circuits thereafter.
Checking the unit:(If no sound is output)
Are the I2S signal output to [CN811 : 7, 11, 13, 14pin] of the DIGITAL PCB ?
NO
Network Module is faulty.
YES
Are audio signal output to Test point DI_F/FL on DIGITAL PCB.
NO
The circuit around [IC751 : A.PLD] is faulty.
YES
Check the [IC781 : DSP] AUDIO circuit and the circuits thereafter.

DIGITAL test point

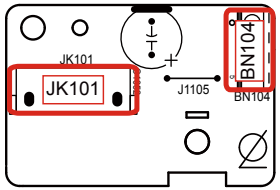


(A Side)



(B Side)

USB test point



(A Side)

DC 5V is not output.

Is [IC601 : TOP268VG] damaged? — YES → Replace the [IC601 : TOP268VG and D6001/ D6002 / D6003 / D6004].

NO

Is the fuse [F6001] functioning properly? — YES → Is [D6001/ D6002 / D6003 / D6004] damaged? — YES → Replace the damaged part.

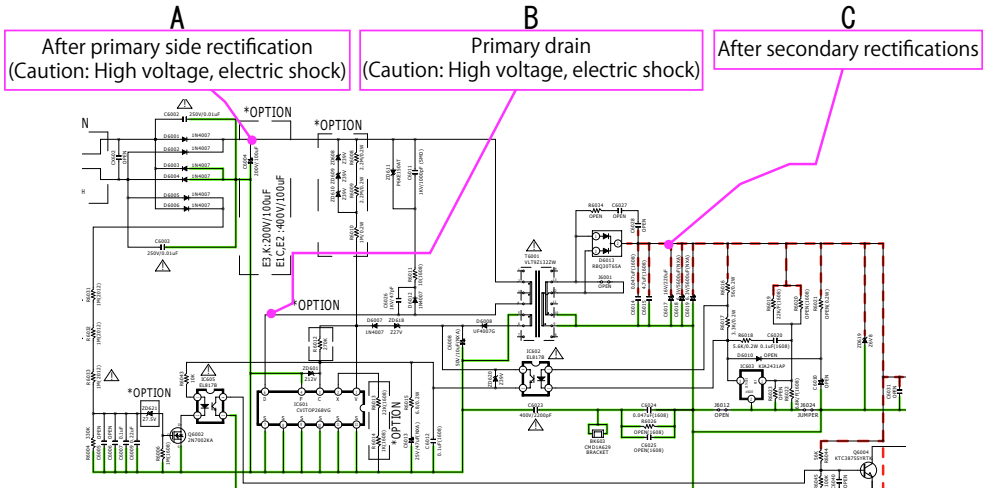
NO

Are there any short circuits caused by the soldering on the PCB? — YES → Repair the short circuited area on the PCB.

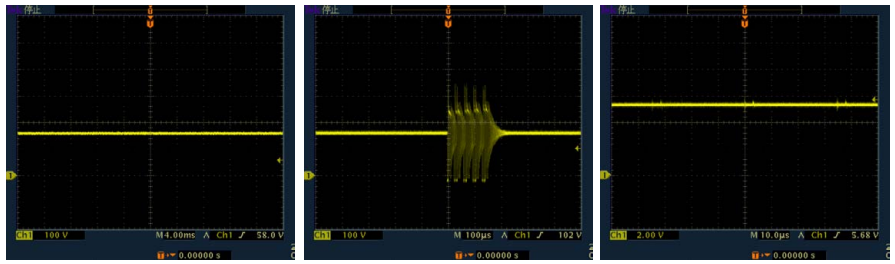
NO

Are any parts damaged? — YES → Check the damaged parts. — YES → Replace the damaged part.

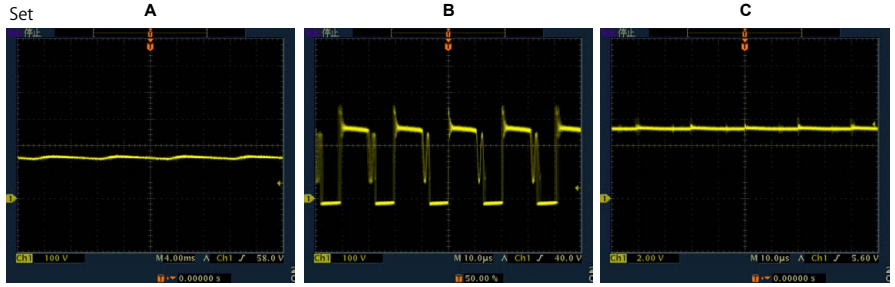
Operation waveform for each part



SMPS unit (Unloaded)



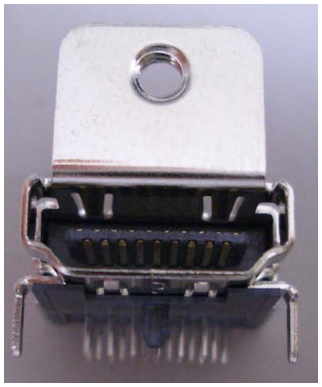
Set



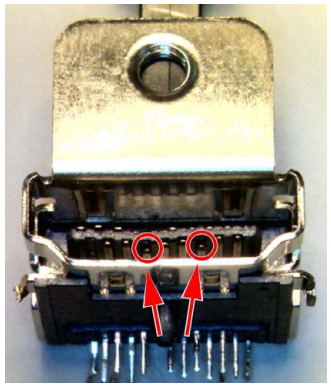
HDMI "Rx/Tx" Failure Detection

1. Prior checking

Check item(1.). : Checking the HDMI connector
Checking the condition of the HDMI pin (rear/front).



OK



NG

Check for deformed pins.

There are deformed pins.

Replace the HDMI connector.

None of the pins are deformed.

Check by following the flow chart for “3. Starting detecting the point of failure".
NOTE :
After checking troubleshooting "3. HDMI/DVI", check "3. Starting detecting the point of failure".

2. Preparations for checking HDMI Switcher reception/transmission register

2-1. Necessary devices

1) Check the product settings.
2-a) Player with an HDMI terminal
2-b) TV with an HDMI terminal (* NOTE : Do not use a computer monitor.)
3) Windows PC
4) Serial communication software "**Termite.exe**"
(Download the software from http://www.compuphase.com/software_termite.htm and install it.)
5) HDMI cable
6) RS-232C Straight cable
7) 8U-210100S WRITING KIT
8) oscilloscope

2-2. Device Connection Method

Connect the TV and the AVR to the player using an HDMI cable and connect the AVR to the PC through an RS-232C cable as shown in Figure 1.

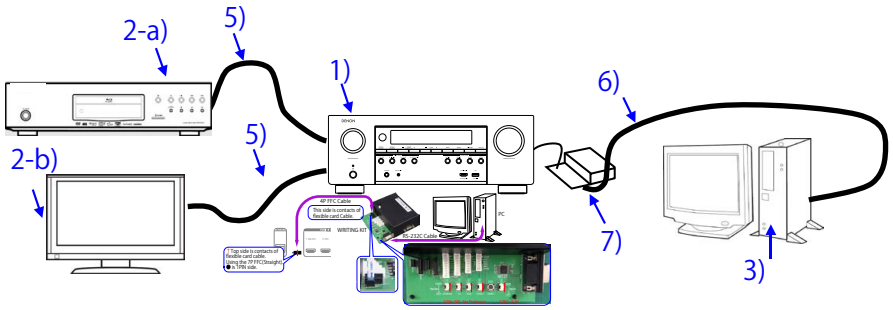


Figure 1 Device Connection Method (AVR-X1700H/AVR-S760H)

2-3. Device configuration method

PC settings : Execute the serial communication program, Termite.exe.

After executing Termite.exe, click [Settings].

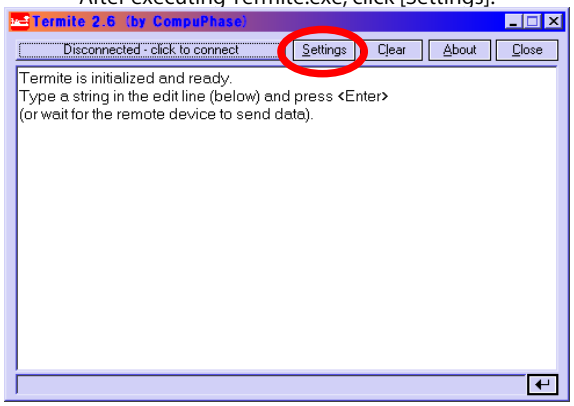

Termite 2.6 (by CompuPhase)
Disconnected - click to connect
Settings
Clear
About
Close
Termite is initialized and ready.
Type a string in the edit line (below) and press <Enter>
(or wait for the remote device to send data).

Figure 2. Screen After Executing Termite.exe

The serial port setup screen will be displayed.
Configure the settings as shown in Figure 3 and click the "**OK**" button.

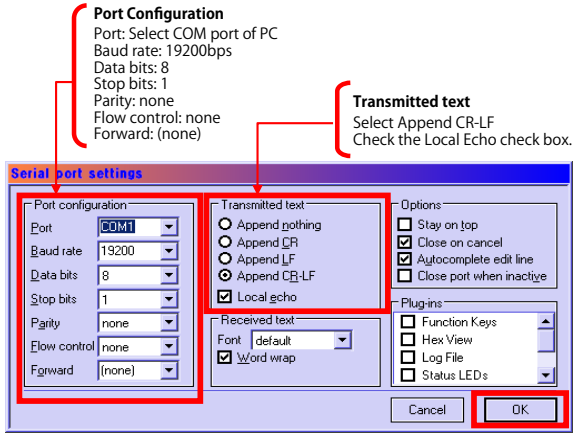


Figure 3. Serial Port Setup Screen

Click the [click to connect] button to start communication.
After a connection is established successfully, the display of the button name will change as shown in Figure 4.

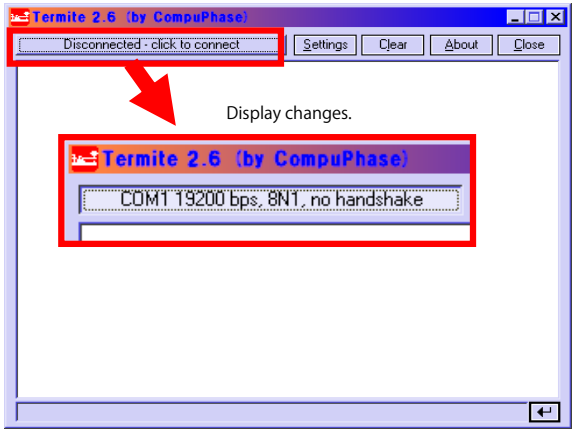


Figure 4. Change of the Display of the Communication Start Button Name

TV settings :	Switch to the HDMI input in the AVR connection.
Player settings :	Turn the unit power on and configure it to play disks.
AVR settings :	While the power is on, hold down buttons "**PRESET UP**" and "**ZONE2 SOURCE**" for at least 3 seconds.

(Continue to press and hold the buttons until all segments of the FLD volume illuminate.)
※ When the power is turned on after initialization, "**Setup Assistant**" will be displayed.
After exiting "**Setup Assistant**" execute the above.

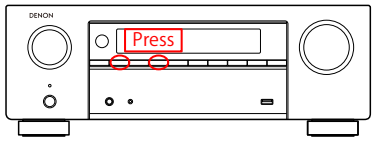


Figure 6-1. AVR settings (AVR-X1700H)

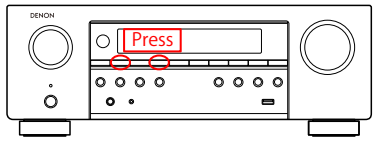


Figure 6-2. AVR settings (AVR-S760H)

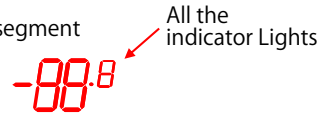


Figure 6. FLD Display When Set

When the settings are correct, the following message will be displayed in the window of Termite.
[00]Start Sub CPU Log Mode
****
(**** is a version of Sub CPU.)

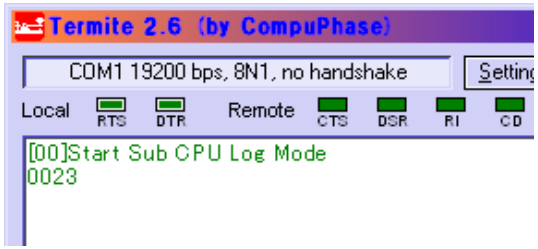


Figure 7. Display of Termite When AVR is Set

The setup is now complete.

Method for sending commands
Enter the command in the transmission command entry section, click the [Send] button and send the command.

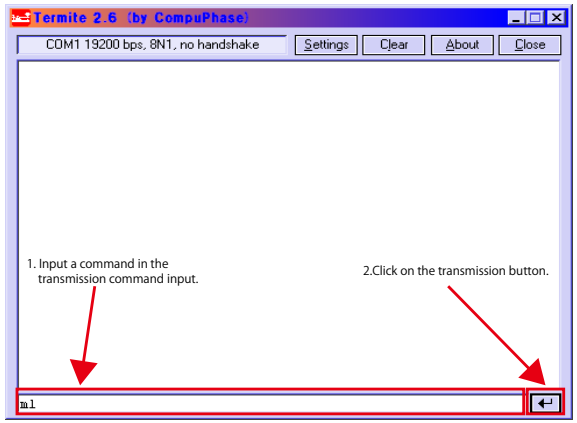


Figure 8. Method for Sending Termite Commands

3. Starting detecting the point of failure

Check item(3.1.).
Check the power supply status and communication status with the CPU of each device.
Start in HDMI Diagnostics mode and follow the procedures below.

Start in HDMI Diagnostics mode

While the power is on, hold down buttons "**TUNER PRESET CH -**" and "**ZONE2 SOURCE**" for at least 3 seconds.

```
HDMI DIAGNOSTICS
```

↓ "**HDMI DIAGNOSTICS**" is displayed.

When the mode has switched, start Hardware Check.

```
HardwareCheck...
```

↓

Display when an Error is detected.

```
Err: H1-XX
```

↓↑ Alternating display.

```
Contact support
```

Check the Error Code table items.

Error Code table

Error Code	Check item No.	Description
H1-01	Check item (3-1.1.)	Communication Error with HDMI Rx/Tx [IC721 : MN864807A]
H1-02	Check item (3-2.1.)	Communication Error with HDMI SW [IC711 : MN864788]
H1-07	Check item (3-3.1.)	Communication Error with OSD [IC731 : ADV7623]
H1-08	Check item (3-5.1.)	Communication Error with DSP [IC781 : CS49844A]
H1-12	Check item (3-6.1.)	Communication Error with DIR [IC761 : PCM9211]
H1-15	Check item (3-4.1.)	Communication Error with OSD ROM [IC732 : BY25Q32BSSIG/BY25Q64ASSIG]

Display when an Error is not detected.

```
1 Auto Test
```

Cancel the mode, and proceed to check item (3.2.).

Canceling the selected mode
Press the power button to exit off the power.

Check item(3.2.). : Check operation of the HDMI input terminal.

When the HDMI input terminal of this device is connected to the player correctly, is sound heard from the speaker?
※ When checking, turn the AV amplifier on and off after checking the connection terminal with the player. (To set the same conditions during verification of operation)

Check that sound is heard from the input terminal of the HDMI 4, 5, 6.
Use any of Dolby TrueHD/DTSHD MA/PCM 8ch for the playback audio format.

NO → Is the "**DIG**" indicator illuminated on the FLD?
When the "**DIG**" indicator is illuminated, the digital audio block is faulty.
If the "**DIG**" indicator is not illuminated, go to check item (3-7.1.).
(HDMI Rx/Tx IC [MN864807A] failure detection procedure)

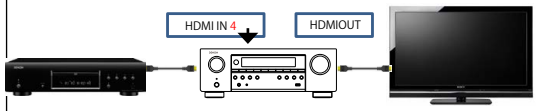
YES

Check that sound is heard from the input terminal of the HDMI 1, 2, 3.

NO → Go to check item (3-8.1.).
(HDMI SW [MN864788] failure detection procedure)

YES

Check item(3.3). : Check operation of the HDMI output terminal.



When the player is connected to the HDMI 4 input terminals, are the images on the player displayed on the TV in both cases?

NO → Go to check item (3-9.1.).
([MN864807A] failure detection procedure)

YES

When the HDMI 1 is connected to the player, the video from the player will be played back on the TV?

NO → Go to check item (3-10.1.).
([MN864788] failure detection procedure)

YES

When the "SETUP" button on a remote control is pressed, is "MENU" displayed on TV which is connected to the HDMI output terminal on the AVR?

NO → Go to check item (3-11.1.).
([ADV7623] failure detection procedure)

YES

There is no problem with HDMI Rx/Tx, SW and GUI ICs.

3-1. Error Code H1-01 failure detection procedure

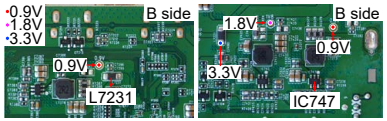
Checking device. (HDMI Rx/Tx)

↓

Check the power supply voltage. (HDMI Rx/Tx)

↓

Check item(3-1.1.). Check the power supply voltage. :
Does the power supply voltage of the HDMI Rx/Tx [IC721] indicate the correct voltage (0.9V x2, 1.8V, 3.3V)?
The test points are as follows.



YES ↓

NO ↓

Check item(3-1.2.). Check the power supply voltage. :
Check the power components [IC742/IC747/IC748/Q7417] and the pattern on the substrate.
If there is no problem, remove the HDMI Rx/Tx [IC721] from the substrate and measure the voltage at the test point of check item (3-1.1.).
Is the voltage correct (1.1V or 3.3V)?

YES ↓

Replace with a new device.

NO ↓

The power supply circuit is faulty.
Replace the PCB.

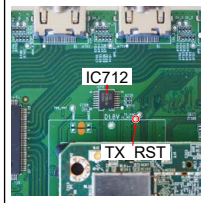
↓

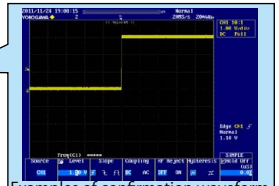
Recheck from check item (3.1.).
If it does not work, replace the PCB.

Checking the reset waveform. (HDMI Rx/Tx)

↓

Check item(3-1.3.). Checking the reset waveform :
Check the waveform.
When the power is turned on, is the TP [807_RST] waveform correct (as shown in the figure)?





Examples of confirmation waveform
Voltage scale：1.0V/div
Time scale：20ms/div

NO →

Check the reset circuit between CPU [IC751] and HDMI Rx/Tx [IC721].
If there is no problem, the HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.
Recheck from check item (3.1.).
If it does not work, replace the PCB.

YES ↓

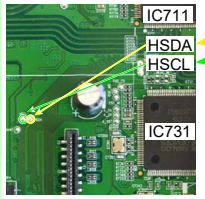
Go to next page.

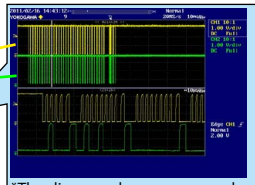
Check the I2C communication line. (HDMI Rx/Tx)

YES

Check item(3-1.4.). Check the I2C communication line :
Check the CPU.
Is the "**I2C**" waveform of the TP HDMI Rx/Tx [IC721] correct (like the one shown in the diagram) when the power is turned on?

NO





*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- SCL frequency (400kHz normally)
Voltage scale：1.0V/div
Time scale：10us/div

Check item(3-1.5.). Check the I2C communication line :
Check HDMI Rx/Tx [IC721], CPU[IC751] patterns as well as soldering.
If there is no problem, go to the next step.

YES

HDMI Rx/Tx [IC721] is faulty.
Replace with a new IC.

YES

Recheck from check item (3.1.).
If it does not work, replace the PCB.

Check the HDMI Rx/Tx.
Remove the damping resistor [R7283/R7284] of [IC721].
Is the "**I2C**" waveform correct?

NO

Check the HDMI SW.
Remove the damping resistor [R7158/R7168] of [IC711].
Is the "**I2C**" waveform correct?

YES

HDMI Rx/Tx [IC721] is faulty. Replace with a new device.

YES

HDMI SW[IC711] is faulty. Replace with a new device.

NO

CPU [IC751] is faulty. Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-2. Error Code H1-02 failure detection procedure

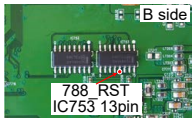
Checking device. (HDMI SW)

↓

Checking the reset waveform. (HDMI SW)

↓

Check item(3-2.1.). Checking the reset waveform :
Check the waveform.
When the power is turned on, is the TP"788_RST" waveform correct (as shown in the figure)?



Examples of confirmation waveform
Voltage scale：1.0V/div
Time scale：20ms/div

NO → Check the reset circuit between CPU [IC751] and HDMI SW [IC711].
If there is no problem, the HDMI SW [IC711] is faulty.
Replace with a new device.

↓ YES

Check item(3-2.2.). Checking the HDMI SW :
Remove the [R7158/R7168].
Is the waveform of "**I2C**" the correct waveform?

YES ↓

NO → HDMI SW[IC711] is faulty.
Replace with a new device.

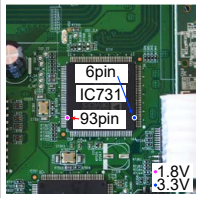
Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-3. Error Code H1-07 failure detection procedure

Checking device. (OSD)

Check the power supply voltage.

Check item(3-3.1.). Check the power supply voltage. :
Does the power supply voltage of the OSD [IC731] indicate the appropriate voltage (1.8V, 3.3V)?
The test points are as follows.



NO

Check item(3-3.2.). Check the power supply voltage. :
Check the power supply components [Q7406/Q7410] on the substrate and peripheral pattern.
If there is no problem, remove the OSD [IC731] from the substrate and measure the voltage at the test point of check item (3-3.1.).
Is the voltage correct (1.8V or 3.3V)?

YES

NO

The power supply circuit is faulty.
Replace the PCB.

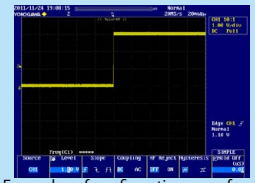
YES

HDMI OSD [IC731] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

Checking the reset waveform.

Check item(3-3.3.). Checking the reset :
Check the CPU.
When the power is turned on, is the TP"A_RST" waveform correct (as shown in the figure)?



Examples of confirmation waveform
Voltage scale：1.0V/div
Time scale：20ms/div

YES

NO

Check the reset circuit between CPU [IC751] and HDMI OSD [IC731].
If there is no problem, the HDMI OSD [IC731] is faulty.
Replace with a new device.

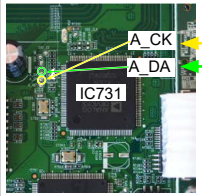
Recheck from check item (3.1.).
If it does not work, replace the PCB.

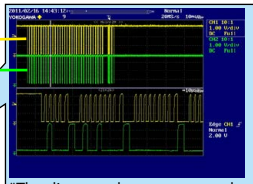
Go to next page.

Check the I2C communication line.

YES

Check item(3-3.4.). Check the I2C communication line :
Check the CPU.
Is the "**I2C**" waveform of the HDMI OSD [IC731] correct (like the one shown in the diagram) when the power is turned on?





*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- SCL frequency (400kHz normally)
Voltage scale：1.0V/div
Time scale：10us/div

YES

NO

Check item(3-3.5.). Check the I2C communication line :
Check HDMI OSD [IC731], CPU [IC751] patterns as well as soldering.
If there is no problem, go to the next step.

Check the HDMI Rx.
Remove the damping resistor [R7323/R7324] of [IC731].
Is the "**I2C**" waveform correct?

NO

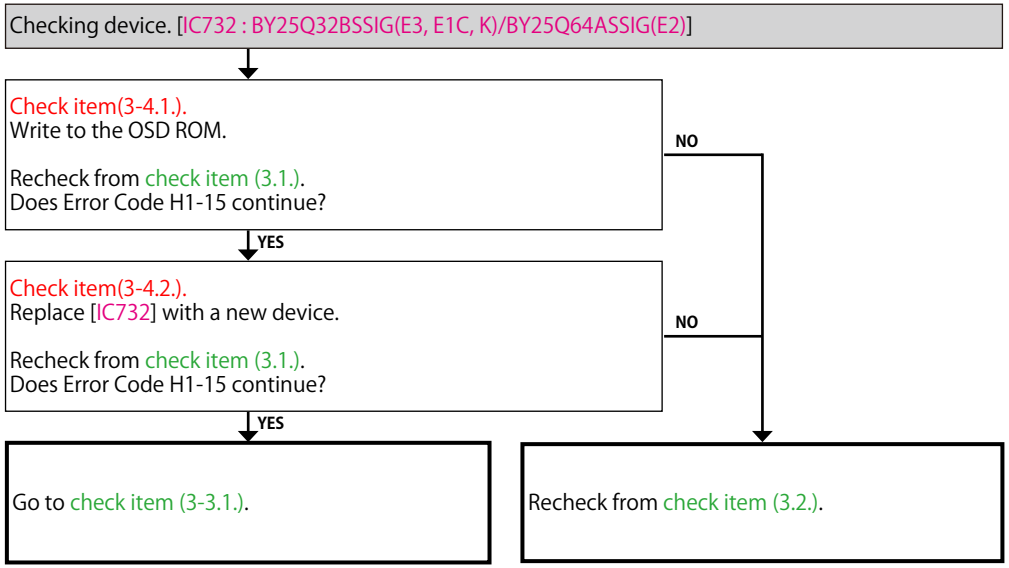
CPU [IC751] is faulty.
Replace with a new device.

YES

OSD [IC731] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-4. Error Code H1-15 failure detection procedure

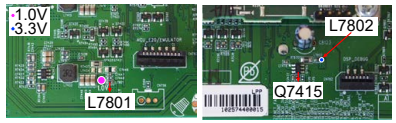


3-5. Error Code H1-08 failure detection procedure

Checking device. [IC781 : CS49844A]

Check the power supply voltage.

Check item(3-5.1.). Check the power supply voltage. :
Does the power supply voltage of the DSP [IC781] indicate the appropriate voltage (1.0V, 3.3V)?
The test points are as follows.



NO

Check item(3-5.2.). Check the power supply voltage. :
Check the power supply components [IC743/Q7415] on the substrate and peripheral pattern.
If there is no problem, remove the DSP [IC781] from the substrate and measure the voltage at the test point of check item (3-5.1.).
Is the voltage correct (1.0V or 3.3V)?

YES

NO

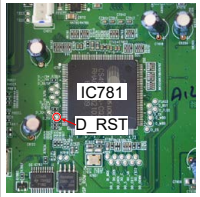
The power supply circuit is faulty.
Replace the PCB.

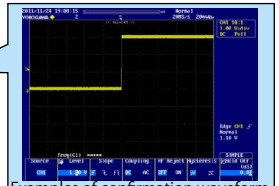
DSP [IC781] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

Checking the reset waveform.

Check item(3-5.3.). Checking the reset :
Check the CPU.
Is the waveform of the TP near the DSP [IC781] correct (like the one shown in the diagram) when the power is turned on?





Examples of confirmation waveform
Voltage scale : 1.0V/div
Time scale : 20ms/div

YES

NO

Check the reset circuit between CPU [IC751] and DSP [IC781].
If there is no problem, the DSP [IC781] is faulty.
Replace with a new device.

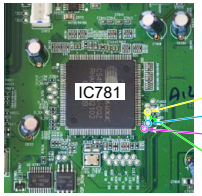
Recheck from check item (3.1.).
If it does not work, replace the PCB.

Go to next page.

Check the SPI communication line.

YES

Check item(3-5.4.). Check the SPI communication line :
Check the CPU.
Is the "**SPI**" waveform of the TP near the DSP [IC781] correct (like the one shown in the diagram) when the power is turned on?



*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- CLOCK frequency (about 6MHz)
Voltage scale：2.0V/div
Time scale：2us/div

YES

NO

Check item(3-5.5.). Check the SPI communication line :
Check DSP [IC781], CPU [IC751] patterns as well as soldering.
If there is no problem, go to the next step.

DSP [IC781] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-6. Error Code H1-12 failure detection procedure

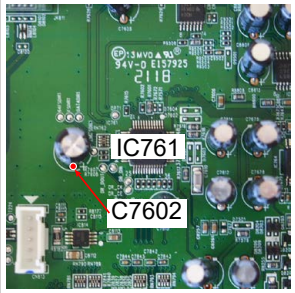
Checking device. [IC761 : PCM9211]

↓

Check the power supply voltage.

↓

Check item(3-6.1.). Check the power supply voltage. :
Does the power supply voltage of the DIR [IC761] indicate the appropriate voltage (3.3V)?
The test points are as follows.



NO →

Check item(3-6.2.). Check the power supply voltage. :
Check the power supply components [Q7415] on the substrate and peripheral pattern.
If there is no problem, remove the DIR [IC761] from the substrate and measure the voltage at the test point of check item (3-6.1.).
Is the power supply voltage correct (3.3V)?

YES ↓

The power supply circuit is faulty.
Replace the PCB.

NO ↓

DIR [IC761] is faulty.
Replace with a new device.

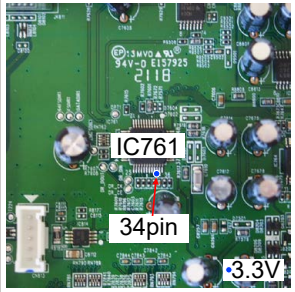
↓

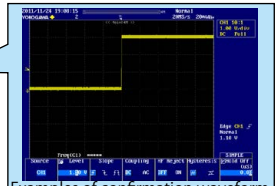
Recheck from check item (3.1.).
If it does not work, replace the PCB.

Checking the reset waveform.

↓

Check item(3-6.3.). Checking the reset :
Check the CPU.
When the power is turned on, is the DIR [IC761 : 34pin] waveform correct (as shown in the figure)?





Examples of confirmation waveform
Voltage scale : 1.0V/div
Time scale : 20ms/div

YES ↓

Go to next page.

NO ↓

Check the reset circuit between CPU [IC751] and DIR [IC761].
If there is no problem, the DIR [IC761] is faulty.
Replace with a new device.

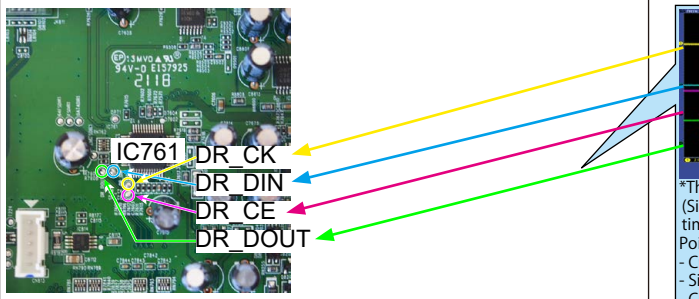
↓

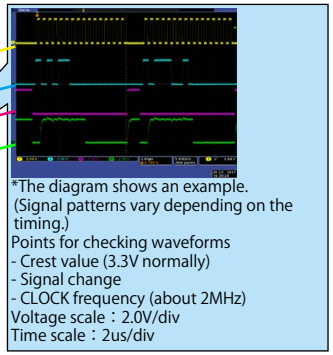
Recheck from check item (3.1.).
If it does not work, replace the PCB.

Check the communication line.

YES

Check item(3-6.4.). Check the communication line :
Check the CPU.
Is the waveform of the TP near the DIR [IC761] correct (like the one shown in the diagram) when the power is turned on?





*The diagram shows an example.
(Signal patterns vary depending on the timing.)
Points for checking waveforms
- Crest value (3.3V normally)
- Signal change
- CLOCK frequency (about 2MHz)
Voltage scale：2.0V/div
Time scale：2us/div

YES

NO

Check item(3-6.5.). Check the communication line :
Check DIR [IC761], CPU [IC751] patterns as well as soldering.
If there is no problem, go to the next step.

DIR [IC761] is faulty.
Replace with a new device.

Recheck from check item (3.1.).
If it does not work, replace the PCB.

3-7. HDMI Rx/Tx [MN864807A] failure detection procedure

Checking operation between the HDMI (Rx/Tx) device and the player

※ In order to check, connect the player to the HDMI terminal and configure the player as AVR source.
Check the sound output while turning on the player.

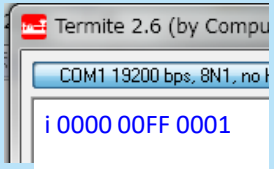
Checking the +5V/DDC status register (HDMI Rx/Tx)

Check item(3-7.1.). Checking the 5V status register :
Send the following command from Termite.exe.

Send the command "i 0000 00FF 0001".

Move to the branch destination according to the value returned.

Example



HDMI IN 4, 5 "8X(X=any)"
(Detection of 5V is not OK.) → Go to check item (3-7.3.).

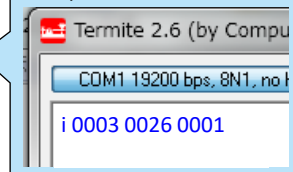
HDMI IN 4 "CX", HDMI IN 5 "AX", HDMI IN 6 "9X"
(Detection of 5V is OK)

Check item(3-7.2.). Checking the status register :
Send the following command from Termite.exe.

Case of HDMI IN 4
Send the command "i 0003 0086 0001".
Case of HDMI IN 5
Send the command "i 0003 0056 0001".
Case of HDMI IN 6
Send the command "i 0003 0026 0001".

Check the value.
Move to the branch destination according to the value returned.

Example



"Other than 0E"
(Detection of DDC is not OK.) → Go to check item (3-7.4.).

"0E"
(Detection of DDC is OK) → Go to check item (3-7.5.).

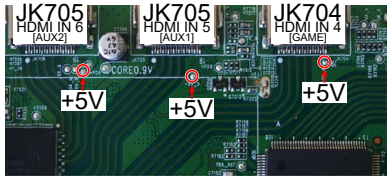
When the results of check item (3-7.1.) (=) are "8X(X=any)"
(Detection of 5V is not OK)

↓

Check the +5V voltage. (HDMI Rx/Tx)

↓

Check item(3-7.3.). Check the +5V voltage.
Does "**+5V**" at the following test point indicate 5 V? [JK704/JK705/JK706]



YES ↓

HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

NO ↓

Check for a short circuit in the 5V line and check the [JK704/JK705/JK706].
If there is no problem, the HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

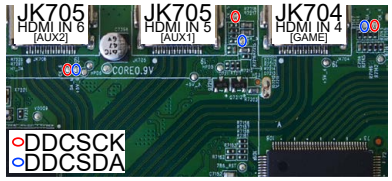
When the results of check item (3-7.2.) are "Other than 03"
(Detection of DDC is not OK.)

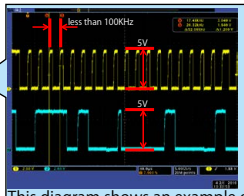
↓

Check the DDC line. (HDMI Rx/Tx)

↓

Check item(3-7.4.). Check the DDC line :
Are waveforms of "**DDCSCK**" and "**DDCSDA**" observed at the test point near the HDMI input terminal?





This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100 KHz or less.
Check at each test point.
Voltage scale：2.0V/div
Time scale：40us/div

YES ↓

HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

NO ↓

Check for a short circuit in the DDC line and check the [JK704/JK705/JK706].
If there is no problem, the HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

When the results of check item (3-7.2.) are "0E"
(Detection of DDC is OK.)

↓

Checking the TMDS status register

↓

Check item(3-7.5.). Checking register of the TMDS CLK detection status register :
Send the following command from Termite.exe.

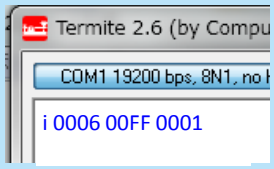
Case of HDMI 5/6
Send the command "i 0001 00C0 0001".

Case of HDMI 5/6
Send the command "i 0001 00C1 0001".

When the following value is returned, go to Yes.
HDMI IN 5/6 : "Other than 11"
HDMI IN 4 : "Other than X1(X=any)"

When the following value is returned, go to No.
HDMI IN 5/6 : "11"
HDMI IN 4 : "X1(X=any)"

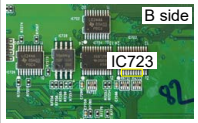
Example



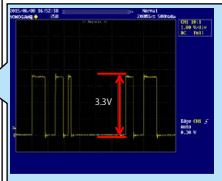
NO →

YES ↓

Check item(3-7.7.). Checking the audio signal output :
Check the audio signal waveform at the following test point.
Is the waveform like the sample?



3/4/5/6/7/8/9/10pin



The diagram shows an example of the waveform of I2S0.
Waveform check points
- Crest value (3.3V normally)
- Signal change
Check the waveform of each pin.
Voltage scale：1.0V/div
Time scale：500us/div

YES ↓

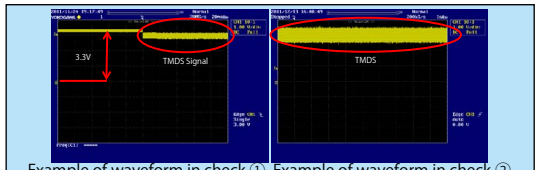
The digital audio block is faulty.
Check the digital audio device.
Check "**AUDIO**" in troubleshooting.
If it does not work, replace the PCB.

NO ↓

HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.

↓

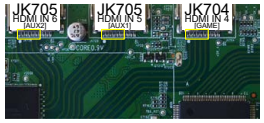
Recheck from check item (3.2.).
If it does not work, replace the PCB.



Example of waveform in check ①
Voltage scale：1.0V/div
Time scale：20ms/div

Example of waveform in check ②
Voltage scale：1.0V/div
Time scale：1s/div

Check item(3-7.6.). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?



HDMI IN 4
1/3/4/6/7/9/10/12pin

HDMI IN 5
1/3/4/6/7/9/10/12pin

HDMI IN 6
1/3/4/6/7/9/10/12pin

YES ↓

HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.

NO ↓

Check for a short circuit in the pattern of the TMDS line of the HDMI Rx/Tx [IC721] from the HDMI input terminal.
If there is no problem, the HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

3-8. HDMI SW [MN864788] failure detection procedure

Checking operation between the HDMI (HDMI SW) device and the player

※ In order to check, connect the player to the HDMI terminal and configure the player as AVR source.
Check the sound output while turning on the player.

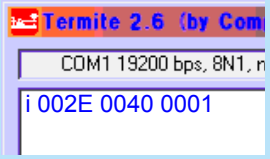
Checking the +5V/DDC status register (HDMI SW)

Check item(3-8.1.). Checking the 5V status register :
Send the following command from Termite.exe.

Send the command "i 002E 00FF 0001".

Move to the branch destination according to the value returned.

Example



HDMI IN 1/IN 2/IN 3 "88"
(Detection of 5V is not OK.)

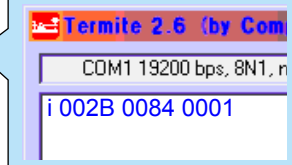
→ Go to check item (3-8.3.).

HDMI IN 1 "C8orCC" HDMI IN 2 "A8orAA" HDMI IN 3 "98or99"
(Detection of 5V is OK)

Check item(3-8.2.). Checking the DDC status register :
Send the following command from Termite.exe.

Case of HDMI IN 1
Send the command "i 002B 0084 0001".
Case of HDMI IN 2
Send the command "i 002B 0054 0001".
Case of HDMI IN 3
Send the command "i 002B 0024 0001".
Move to the branch destination according to the value returned.

Example



"00 or 04"
(Detection of DDC is not OK.)

→ Go to check item (3-8.4.).

"22"
(Detection of DDC is OK)

→ Go to check item (3-8.5.).

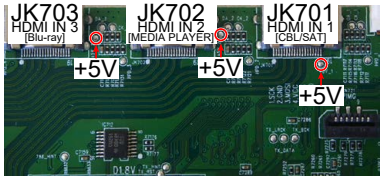
When the results of check item (3-8.1.) are "88"
(Detection of 5V is not OK)

↓

Check the +5V voltage. (HDMI SW)

↓

Check item(3-8.3.). Check the +5V voltage :
Does "**+5V**" at the following test point indicate 5 V? [JK701/JK702/JK703]



↓ YES

HDMI SW[IC711] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

↓ NO

Check for a short circuit in the 5 V line and the 5 V Switch IC [IC712].
If there is no problem, the HDMI SW [IC711] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

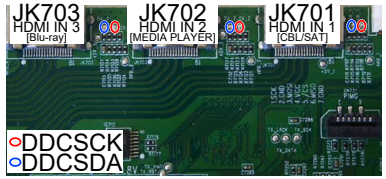
When the results of check item (3-8.2.) are "00 or 04"
(Detection of DDC is not OK.)

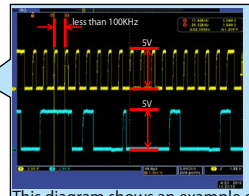
↓

Check the DDC line. (HDMI SW)

↓

Check item(3-8.4.). Check the DDC Line HPD line :
Are waveforms of "**DDCSCK**" and "**DDCSDA**" observed at the test point near the HDMI input terminal [JK701/JK702/JK703]?





This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100 KHz or less.
Check at each test point.
Voltage scale：2.0V/div
Time scale：40us/div

↓ YES

HDMI SW[IC711] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

↓ NO

Check for a short circuit in the DDC line.
If there is no problem, the HDMI SW [IC711] is faulty.
Replace with a new device.

↓

Recheck from check item (3.2.).
If it does not work, replace the PCB.

When the results of check item (3-8.2.) are "22"
(Detection of DDC is OK.)

Checking the TMDS status register (HDMI SW)

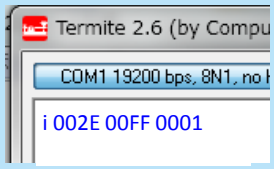
Check item(3-8.5.). Checking register of the TMDS CLK detection status register :
Send the following command from Termite.exe.

HDMI Rx/Tx
Send the command "i 002E 00FF 0001".

When the following value is returned, go to Yes.
HDMI IN 1 "CC or C4" HDMI IN 2 "AA or A2" HDMI IN 3 "99 or 91"

When the following value is returned, go to No.
HDMI IN 1 "88" HDMI IN 2 "88" HDMI IN 3 "88"

Example

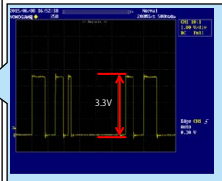


NO

YES

Check item(3-8.7.). Checking the audio signal output :
Check the audio signal waveform at the following test point.
Is the waveform like the sample?

129/131/132/133/134/135/136pin



The diagram shows an example of the wave-form of I2S0.
Waveform check points
- Crest value (3.3V normally)
- Signal change
Check the waveform of each pin.
Voltage scale：1.0V/div
Time scale：500us/div

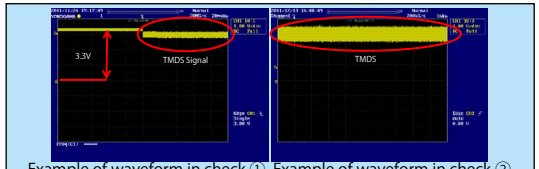
YES

The digital audio block is faulty.
Check the digital audio device.
Check "**AUDIO**" in troubleshooting.
If it does not work, replace the PCB.

NO

HDMI [IC711] is faulty.
Replace with a new device.

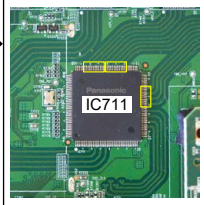
Recheck from check item (3.2.).
If it does not work, replace the PCB.



Example of waveform in check ①
Voltage scale：1.0V/div
Time scale：20ms/div

Example of waveform in check ②
Voltage scale：1.0V/div
Time scale：1s/div

Check item(3-8.6.). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?



HDMI IN 1
83/84/86/87/89/90/92/93pin

HDMI IN 2
124/125/127/128/130/131/133/134pin

HDMI IN 3
137/138/140/141/143/144/146/147pin

YES

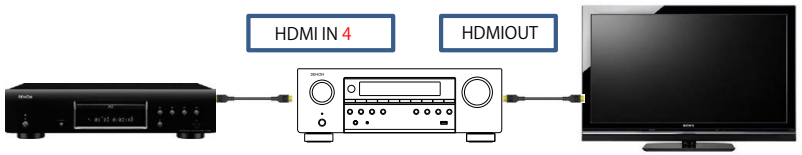
HDMI SW[IC711] is faulty.
Replace with a new device.

NO

Check for a short circuit in the pattern of the TMDS line of the HDMI SW [IC711] from the HDMI input terminal.
If there is no problem, the HDMI SW [IC711] is faulty.
Replace with a new device.

Recheck from check item (3.2.).
If it does not work, replace the PCB.

3-9. HDMI Rx/Tx [MN864807A] failure detection procedure



※ In order to check, connect the player to the HDMI terminal and configure the player and TV as AVR source.
Then turn on the player and TV and check the video output.

↓

Checking between OUT and the TV.
Connect OUT to the TV and check the following items with the TV turned on.

↓

Checking the HPD status register (HDMI Tx -> TV)

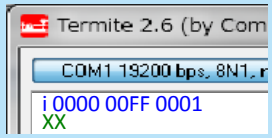
↓

Check item(3-9.1.). Check the HPD register value of the HDMI TX device. :
Send the following command from Termite.exe.

Send the command "i 0000 00FF 0001".

Move to the branch destination according to the value returned.

Example



"X2" (X=any)
(Detection of HPD is OK) → Go to check item (3-9.2.).

"X0" (X=any)
(Detection of HPD is not OK.) → Go to check item (3-9.5.).

When the results of check item (3-9.1.) are "X2 (X=any)"
(Detection of HPD is OK)

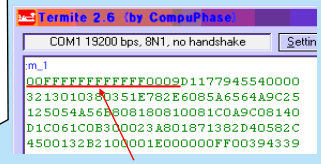
↓

Checking the EDID register. (HDMI OUT)

↓

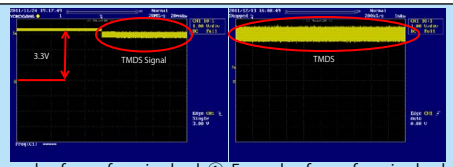
Check item(3-9.2.). Check the Monitor EDID :
① Unplug the AC cord. Plug the AC cord into a power outlet.
② Send the transmission command "m_1" from Termite.exe.
Are the first eight bytes of the returned value "00FFFFFFFFFFFF00"?

Example



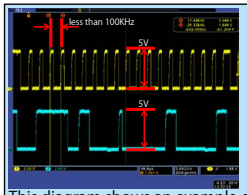
The first eight bytes are normally "00FFFFFFFFFFFF00".
The correct resistor value cannot be checked if the AVR and TV are not connected by HDMI.

YES / NO



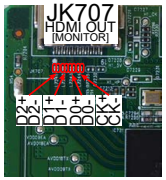
Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div

Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div



This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div

Check item(3-9.3.). Checking the TMDS :
Check the TMDS waveform at the following test point.



Check item(3-9.4.). Check the communication :
Are the waveforms for "CKL" and "DATA" at the test point near the HDMI output connector [JK707] correct (as shown in the figure)?

YES / NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Tx [IC721] is faulty.
Replace with a new device.

HDMI Tx [IC721] is faulty.
Replace with a new device.

YES / NO

Check for a short circuit in the DDC line.
If there is no problem, the HDMI Tx [IC721] is faulty.
Replace with a new device.

HDMI Tx [IC721] is faulty.
Replace with a new device.

Recheck from check item (3.3.).
If it does not work, replace the PCB.

When the results of check item (3-9.2.) are "X0 (X=any)"
(Detection of HPD is not OK.)

↓

Check the HPD. (HDMI OUT)

↓

Check item(3-9.5.). Checking the HPD :
Is "Hi(3-5V)" indicated for "19pin"(HPD) in the HDMI output terminal [JK707]?

YES

NO

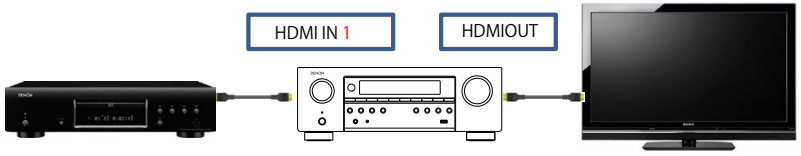
Check for a short circuit in the HPD line.
If there is no problem, the HDMI Tx [JK707] is faulty.
Replace with a new device.

HDMI Tx [IC721] is faulty.
Replace with a new device.

Recheck from check item (3.3.).
If it does not work, replace the PCB.

3-10. HDMI SW IC [MN864788] failure detection procedure

Checking operation between the HDMI (SW) device and the HDMI device (Tx).



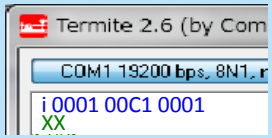
Checking the TMDS status register (HDMI SW -> HDMI Tx)

Check item(3-10.1.). Check the TMDS CLK detection status of the register.
Send the following command from Termite.exe.

Send the command "i 0001 00C1 0001".

When the following value is returned, go to YES.
"Other than 11"
When the following value is returned, go to NO.
"11"

Example



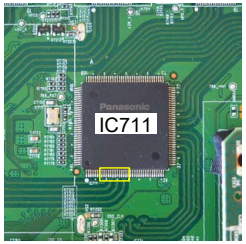
YES

HDMI Tx [IC721] is faulty.
Replace with a new device.

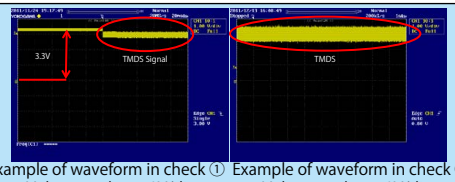
Recheck from check item (3.4.).
If it does not work, replace the PCB.

NO

Check item(3-10.2.). Checking the TMDS input. :
TMDS waveform at the following points.



Between HDMI SW and HDMI Tx
8/10/11/13/14/16/17/19pin



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div

Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

YES

HDMI Tx [IC721] is faulty.
Replace with a new device.

YES

Recheck from check item (3.4.).
If it does not work, replace the PCB.

NO

If it is No between HDMI SW and HDMI Tx.
HDMI SW[IC711] is faulty.
Replace with a new device.

3-11. OSD [ADV7623] failure detection procedure

Checking the TMDS status register (OSD -> HDMI SW)

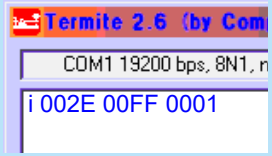
Check item(3-11.1.). Check the TMDS CLK detection status of the register.
Send the following command from Termite.exe.

Send the command "i 002E 00FF 0001".

When the following value is returned, go to Yes.
"88"

When the following value is returned, go to No.
"other"

Example

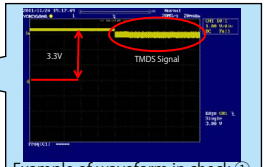


NO

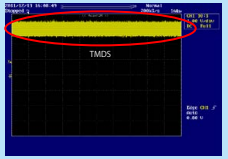
Check item(3-11.2.). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?

HDMI SW [IC711]

42/43/45/46/48/49/51/52pin



Example of waveform in check ①
Voltage scale：1.0V/div
Time scale：20ms/div



Example of waveform in check ②
Voltage scale：1.0V/div
Time scale：1s/div

YES

Check the connection between the HDMI OUT terminal and the TV.

YES

HDMI Rx/Tx [IC721] is faulty.
Replace with a new device.

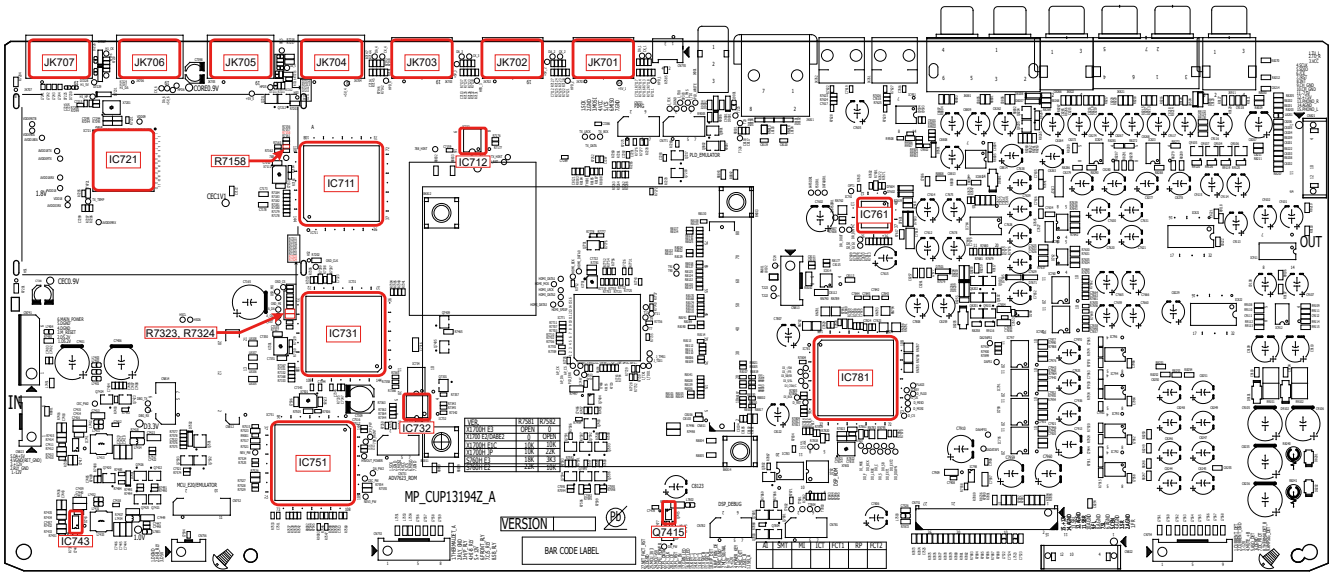
NO

OSD [IC731] is faulty.
Replace with a new device.

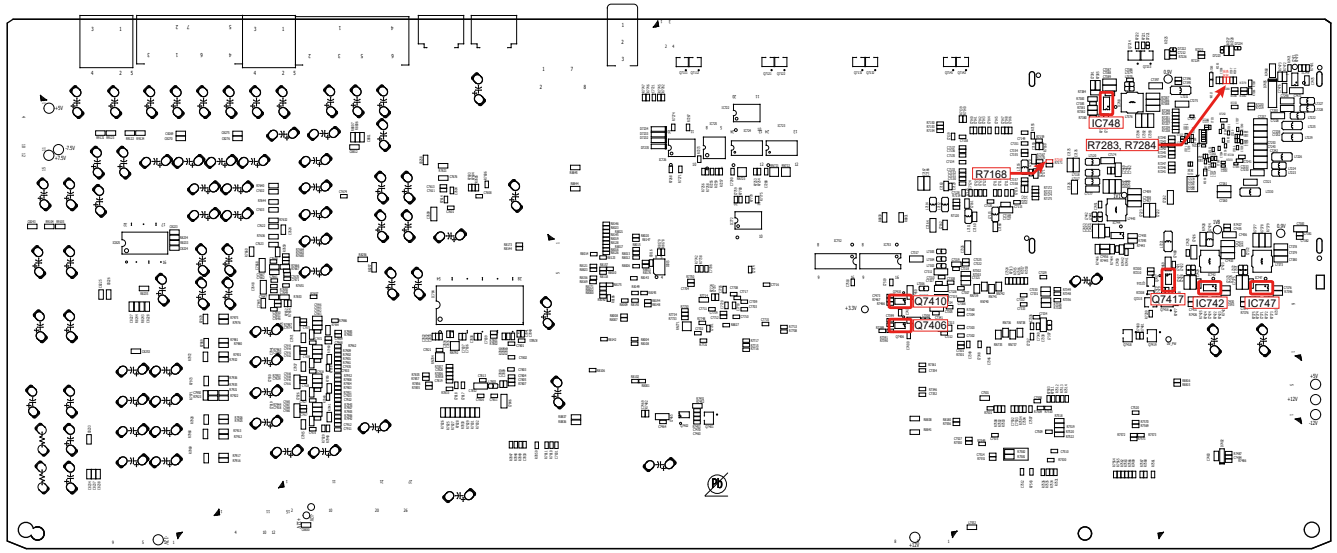
Recheck from check item (3.3.).
If it does not work, replace the PCB.

4. Device implementation location

DIGITAL (A Side)

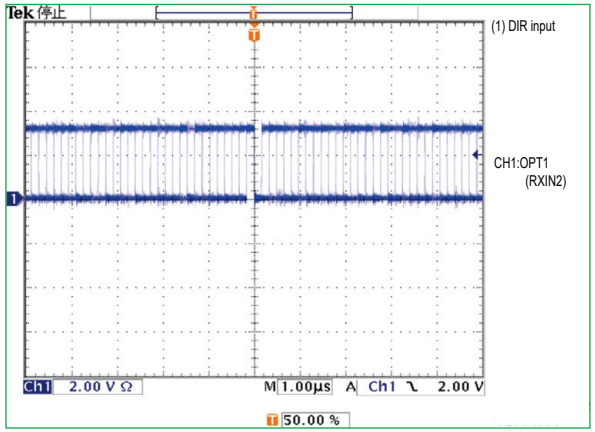


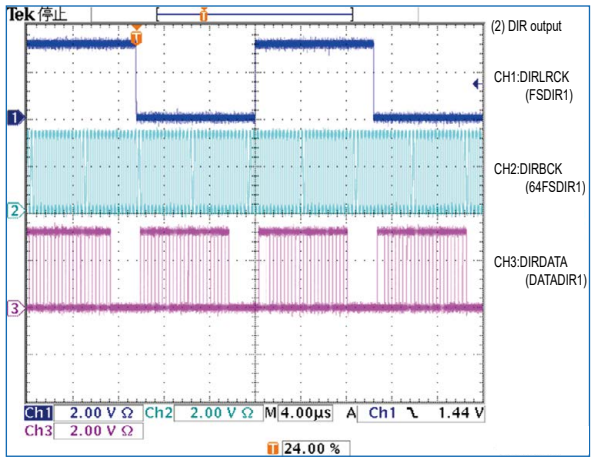
DIGITAL (B Side)

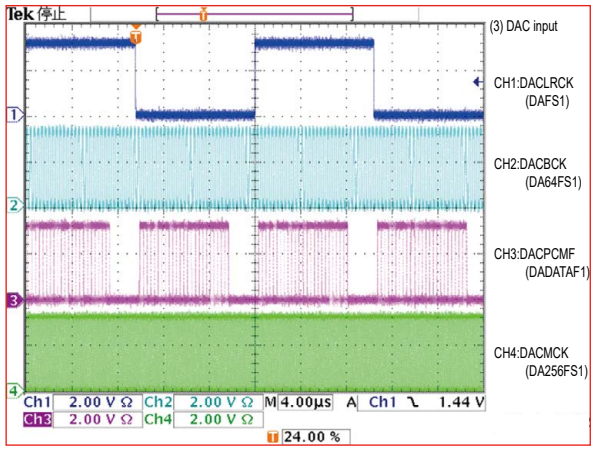


CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

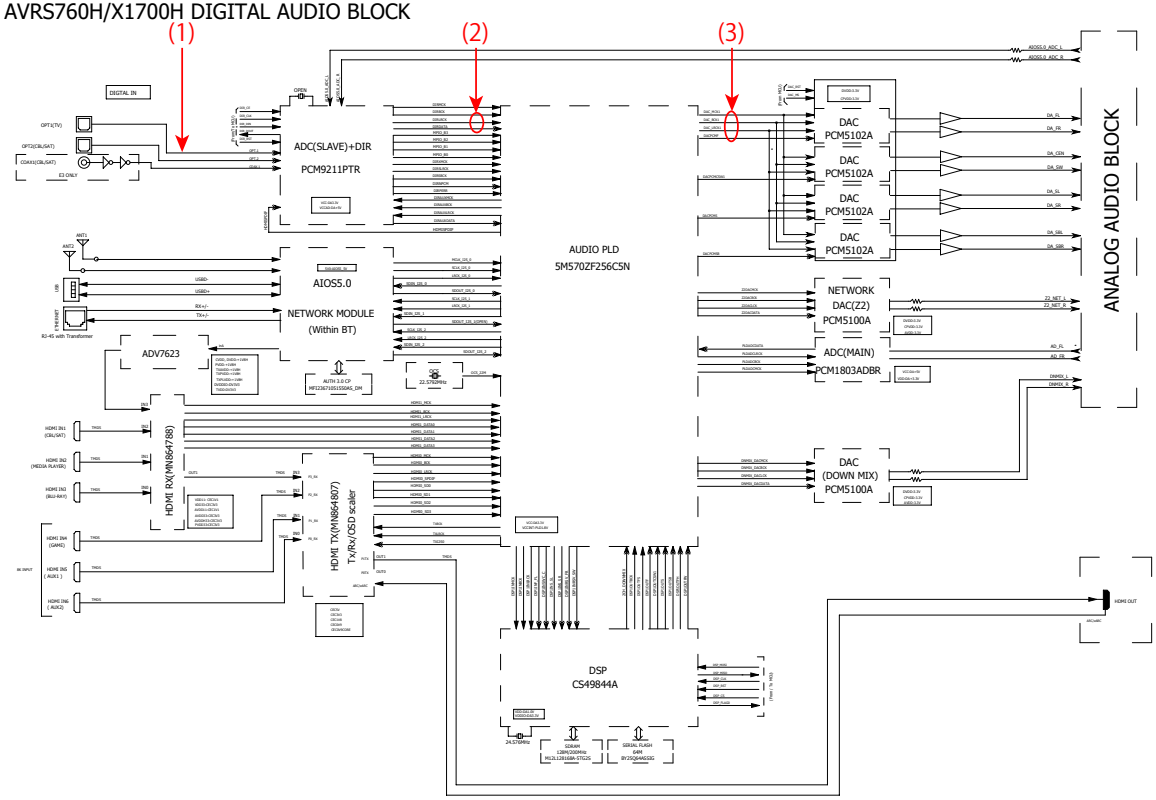
WAVE FORM

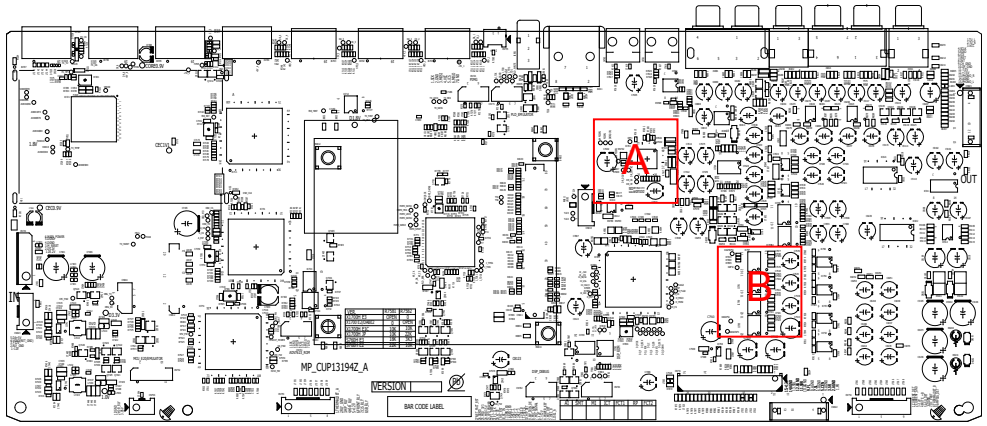




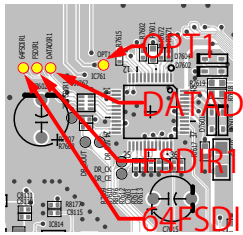


AVRS760H/X1700H DIGITAL AUDIO BLOCK

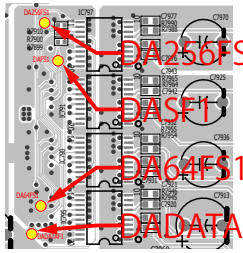




Detail A



Detail B



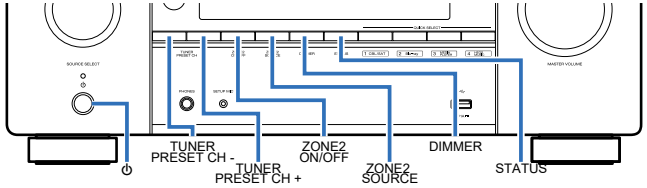
SPECIAL MODE

Special mode setting button AVR-X1700H

※ No. 1 - 4, 6 - 8 : While holding down buttons "**A**", "**B**" and "**C**" simultaneously, press the power button to turn on the power.
※ No. 5, 9, 10 : While the power is on, hold down buttons "**A**", "**B**", and "**C**" for at least 3 seconds .

No.	Mode	Button A	Button B	Button C	Descriptions
1	Version Display Mode (MCU / DSP Error Display)	DIMMER	STATUS	-	Displays the version of firmware such as the main firmware or DSP. Errors that have occurred are displayed. (See 1. Version Display Mode)
2	PANEL / REMOTE LOCK Selection Mode	TUNER PRESET CH +	ZONE2 SOURCE	-	Start this unit in the PANEL/REMOTE LOCK selection mode so that PANEL LOCK and Remote Lock can be switched between On and Off. (See 2. PANEL / REMOTE LOCK Selection Mode)
3	Selecting the Mode for Service-related	ZONE2 SOURCE	DIMMER	STATUS	This is a display for turning on each service-related mode. Service-related modes : No. 3-1 - No. 3-5 (See 3-1. Selecting the Mode for Service-related)
3-1	Check the Video/Audio path Mode	↑	↑	↑	This is a special mode for service confirmation used during repair work to simplify the confirmation work for the Audio channel / video channel. (See Service Path Check Mode)
3-2	Protection history display mode	↑	↑	↑	Displays the protection occurrence history. (See 3-2. Protection History Display Mode)
3-3	Operation Info Mode	↑	↑	↑	Displays the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection. (See 3-3. Operation Info Mode)
3-4	TUNER STEP Mode (E3 and E2 model only, Except DABE2)	↑	↑	↑	Enables reception STEP of the ANALOG TUNER to be changed. (See 3-4. TUNER STEP mode (E3 / E2 only, Except DABE2))
3-5	Remote ID Setup Mode	↑	↑	↑	If there are multiple DENON AV receivers in the same area, this mode prevents other AV receivers from being operated concurrently with this device. (See 3-5. Remote ID Setup Mode)
4	Protection Pass Mode	TUNER PRESET CH +	ZONE2 SOURCE	STATUS	Enables the power to be turned on when protection detection is disabled. (See 4. Protection Pass Mode)
5	Network Initialization Mode	TUNER PRESET CH +	ZONE2 ON/OFF	-	Network module backup data is initialized. (See 5. Network Initialization Mode)
6	User Initialization Mode	TUNER PRESET CH -	TUNER PRESET CH +	-	Initialize the backup data for the MCU and network module. (Settings for the Installer Setup are not initialized.)
7	Factory Initialization Mode	ZONE2 SOURCE	DIMMER	-	Initialize the backup data only for MCU. (Settings for the Installer Setup are initialized) (Network function settings are not initialized.) (See POST-SERVICE PRECAUTIONS)
8	Clearing the Operation Info	ZONE2 SOURCE	STATUS	-	Clear the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection. (See 6. Clearing the Operation Info)
9	HDMI Diagnostics Mode	TUNER PRESET CH -	ZONE2 SOURCE	-	This mode is used to identify and solve the cause when there is a connectivity issue with this unit and an HDMI device. For details on the operating methods and diagnosis procedures, see the HDMI Diagnostics and Troubleshooting guide issued on SDI.
10	Log Capture feature	TUNER PRESET CH +	ZONE2 SOURCE	STATUS	Acquires the Network Module log. The log is deleted when the Network Module is deleted. (See 7. Log Capture feature)

NOTE : When the volume indicator displays " -88.8 ", the unit has entered a special mode for developers. In this case, the RS-232C communication is not available.
To release this special mode, press and hold the "**TUNER PRESET CH +**" and "**ZONE2 SOURCE**" buttons for 3 seconds or more while the power is ON. When the volume indicator returns to the normal display, the RS-232C communication is available.

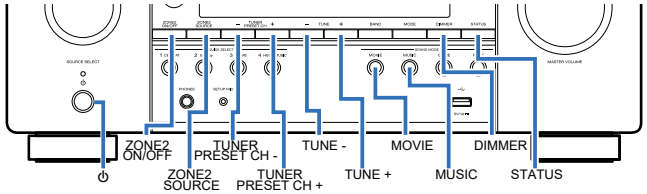


Special mode setting button AVR-S760H

※ No. 1 - 4, 6 - 8 : While holding down buttons "**A**", "**B**" and "**C**" simultaneously, press the power button to turn on the power.
※ No. 5, 9, 10 : While the power is on, hold down buttons "**A**", "**B**", and "**C**" for at least 3 seconds .

No.	Mode	Button A	Button B	Button C	Descriptions
1	Version Display Mode (MCU / DSP Error Display)	DIMMER	STATUS	-	Displays the version of firmware such as the main firmware or DSP. Errors that have occurred are displayed. (See 1. Version Display Mode)
2	PANEL / REMOTE LOCK Selection Mode	ZONE2 SOURCE	TUNER PRESET CH +	-	Start this unit in the PANEL/REMOTE LOCK selection mode so that PANEL LOCK and Remote Lock can be switched between On and Off. (See 2. PANEL / REMOTE LOCK Selection Mode)
3	Selecting the Mode for Service-related	TUNER PRESET CH +	TUNE -	TUNE +	This is a display for turning on each service-related mode. Service-related modes : No. 3-1 - No. 3-5 (See 3-1. Selecting the Mode for Service-related)
3-1	Check the Video/Audio path Mode	↑	↑	↑	This is a special mode for service confirmation used during repair work to simplify the confirmation work for the Audio channel / video channel. (See Service Path Check Mode)
3-2	Protection history display mode	↑	↑	↑	Displays the protection occurrence history. (See 3-2. Protection History Display Mode)
3-3	Operation Info Mode	↑	↑	↑	Displays the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection. (See 3-3. Operation Info Mode)
3-4	TUNER STEP Mode (E3 and E2 model only)	↑	↑	↑	Enables reception STEP of the ANALOG TUNER to be changed. (See 3-4. TUNER STEP mode (E3 / E2 only, Except DABE2))
3-5	Remote ID Setup Mode	↑	↑	↑	If there are multiple DENON AV receivers in the same area, this mode prevents other AV receivers from being operated concurrently with this device. (See 3-5. Remote ID Setup Mode)
4	Protection Pass Mode	ZONE2 SOURCE	TUNER PRESET CH +	TUNE +	Enables the power to be turned on when protection detection is disabled. (See 4. Protection Pass Mode)
5	Network Initialization Mode	ZONE2 ON/OFF	ZONE2 SOURCE	-	Network module backup data is initialized. (See 5. Network Initialization Mode)
6	User Initialization Mode	TUNER PRESET CH -	TUNER PRESET CH +	-	Initialize the backup data for the MCU and network module. (Settings for the Installer Setup are not initialized.)
7	Factory Initialization Mode	TUNER PRESET CH +	TUNE -	-	Initialize the backup data only for MCU. (Settings for the Installer Setup are initialized) (Network function settings are not initialized.) (See POST-SERVICE PRECAUTIONS)
8	Clearing the Operation Info	TUNER PRESET CH +	TUNE +	-	Clear the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection. (See 6. Clearing the Operation Info)
9	HDMI Diagnostics Mode	ZONE2 SOURCE	TUNER PRESET CH -		This mode is used to identify and solve the cause when there is a connectivity issue with this unit and an HDMI device. For details on the operating methods and diagnosis procedures, see the HDMI Diagnostics and Troubleshooting guide issued on SDI.
10	Log Capture feature	MOVIE	MUSIC	-	Acquires the Network Module log. The log is deleted when the Network Module is deleted. (See 7. Log Capture feature)

NOTE : When the volume indicator displays " -88.8 ", the unit has entered a special mode for developers. In this case, the RS-232C communication is not available.
To release this special mode, press and hold the "**ZONE2 SOURCE**" and "**TUNER PRESET CH +**" buttons for 3 seconds or more while the power is ON. When the volume indicator returns to the normal display, the RS-232C communication is available.



1. Version Display Mode

1.1. Actions

Version information is displayed when the device is started in this mode.

1.2. Starting up

While holding down buttons "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.
then press the "**STATUS**" button to display the information in section 1.3 on the display.
※ The version list is also displayed on GUI while the version is displayed on the display.

1.3. Display Order

Error information(See "1.4. Error display") → ① Model destination information → ② Serial Number → ③ Firmware Package → ④ MCU → ⑤ Main 1st Boot Loader → ⑥ DSP → ⑦ Audio PLD → ⑧ GUI SFLASH → ⑨ PIMG → ⑩ Hybrid GUI → ⑪ HEOS Version → ⑫ HEOS Build → ⑬ HEOS Module → ⑭ HEOS Configuration → ⑮ HEOS Locale → ⑯ Restore Version → ⑰ Ether Mac Address → ⑱ WiFi Mac Address → ⑲ BT Mac Address → ⑳ Audyssey App Interface Version

①Model destination information :

```
AVR-@@@@@@ \\\
```

@ : Model name (X1700H(DAB), S760H)
\ : Region (E3, E2,E1C, JP)

②Serial Number :

```
SN:%%%**********
```

% : SKU code

③Firmware Package :

```
Package*    :****
```

④MCU :

```
M:**************
```

⑤Main 1st Boot Loader :

```
Main FBL :**.**
```

⑥DSP ROM :

```
DSP         :**.**
```

⑦Audio PLD :

```
A.PLD  :********
```

⑧GUI SFLASH :

```
GUI    :@@$\****
```

@ : Model code
$: Brand code (Non=0, De=1, Mz=2, Mc=3)
\ : Region code (E3=1, E2=2, E1C=5, JP=4, ALL=0)
* : version

⑨PIMG :

```
PIMG   :********
```

⑩Hybrid GUI :

```
HIMG   :********
```

⑪HEOS Version :

```
HEOS Version
```

↓Press "**STATUS**" button.

```
*.***.***
```

⑫HEOS Build :

```
HEOS Build
```

↓Press "**STATUS**" button.

```
*******
```

⑬HEOS Module :

```
HEOS Module
```

↓Press "**STATUS**" button.

```
***
```

⑭HEOS Config :

```
HEOS Config
```

↓Press "**STATUS**" button.

```
Development
```

```
Production
```

⑮HEOS Locale :

```
HEOS Locale
```

↓Press "**STATUS**" button.

```
**_**
```

⑯Restore Version :

```
RSTR
```

↓Press "**STATUS**" button.

```
************
```

⑰Ether MAC Address :

```
*Ether MAC
```

↓Press "**STATUS**" button.

```
******-******
```

⑱Wi-Fi MAC Address :

```
*Wi-Fi MAC
```

↓Press "**STATUS**" button.

```
******-******
```

⑲Bluetooth MAC Address :

```
*BT MAC Address
```

↓Press "**STATUS**" button.

```
******-******
```

⑳Audyssey App Interface Ver :

```
Audy IFVer:**.**
```

1.4. Error display

See the table below for descriptions of the displayed errors and countermeasures for these.
If multiple errors occur, only one item is displayed.
The priority order is ②, ③, ④, ①.

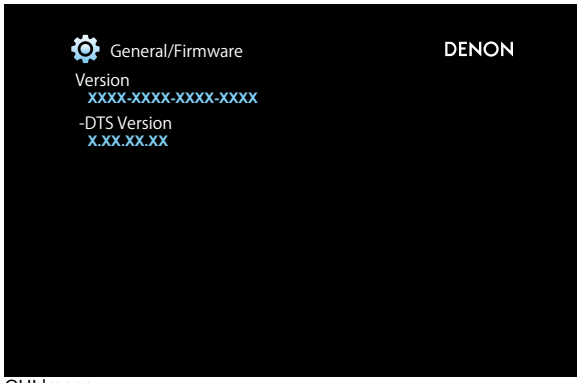
Condition	States	Display	TROUBLE SHOOTING
① Firmware Check NG	The model name, brand name and region information written in the firmware are compared to the region settings in the PCB. This error is displayed if the information does not match. " ▲ " is displayed as the first character if the firmware is not correct (see the illustrations on the right).	FIRM ERROR ▲M:********** ▲Main FBL :**.** ▲DSP :**.** ▲Audio PLD:**.** ▲PIMG :********	•Check the resistor for setting the region[R7581, R7582, R7554, R7555, DIGITAL PCB]. •Write the firmware for the correct region. **PIMG Error indication** •Check the circuits around the Logic [IC724, IC726] and SFROM [IC725]. If there appear to be no problems, [IC724, IC726] or [IC725] is faulty.
② DIR NG	This error is displayed if there is no response from the DIR.	DIR ERROR 01	•Check the DIR [IC761, DIGITAL PCB] and surrounding circuits.
③ DSP NG	Boot error 1 (After reset the DSP, DSP_Flag0 port is "**Low**")	DSP ERROR 01	•Check the DSP [IC781, DIGITAL PCB] and surrounding circuits.
	Boot Error 2 (After reset the DSP, MCU received state error command)	DSP ERROR 02	
	Signal Detect Error (No response after input set for 1sec)	DSP ERROR 03	
	Mode Change Error (No response after mode change for 1sec)	DSP ERROR 04	
	Invalid situation (Detecting invalid situation with autodetect)	DSP ERROR 05	
	Busy Error ("**Busy**" port remains "**Low**" for 1sec)	DSP ERROR 06	
	Output Fs Error (Fs status between MCU output and actual DSP is different)	DSP ERROR 07	
	Input Fs Error (Fs status between AutoDetect Msg and ACCN Msg is different)	DSP ERROR 08	
	SPI communication error	DSP ERROR 09	
④ BACKUP NG	Error occurred in BACKUP. it is an error of the check sum.	BACKUP ERROR	

1.5. Version Display in the Setup Menu

Follow the steps below to display the firmware information.

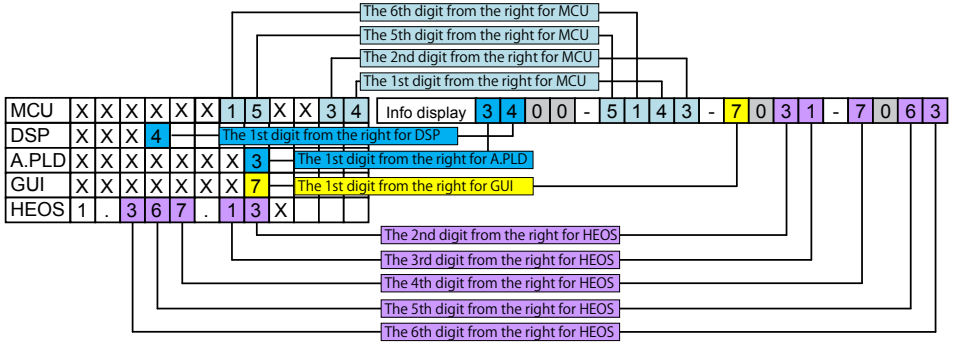
(1) Press the "**SETUP**" button on the remote control.
(2) Select "**General** - **Information** - **Firmware**".

The version information is displayed as a 16-digit number as shown in the screenshot below.



GUI Image

This 16-digit number comprises a part of the version number of each device and module.
Numerics and version numbers correspond as shown below.


The 6th digit from the right for MCU
The 5th digit from the right for MCU
The 2nd digit from the right for MCU
The 1st digit from the right for MCU
MCU X X X X X X 1 5 X X 3 4
Info display 3 4 0 0 - 5 1 4 3 - 7 0 3 1 - 7 0 6 3
DSP X X X 4
The 1st digit from the right for DSP
A.PLD X X X X X X X 3
The 1st digit from the right for A.PLD
GUI X X X X X X X 7
The 1st digit from the right for GUI
HEOS 1 . 3 6 7 . 1 3 X
The 2nd digit from the right for HEOS
The 3rd digit from the right for HEOS
The 4th digit from the right for HEOS
The 5th digit from the right for HEOS
The 6th digit from the right for HEOS

※ The firmware version numbers and this 16-digit version information are written in the Service Information.
※ Replace as follows for the 2nd to 7th digits of HEOS version.

X.X.XXX -> X.00X.XXX
X.XX.XXX -> X.0XX.XXX
X.XXX.XXX -> X.XXX.XXX
X.XXX.XX -> X.XXX.0XX
X.XXX.X -> X.XXX.00X

2. PANEL / REMOTE LOCK Selection Mode

2.1. Actions

Switch the PANEL LOCK and REMOTE LOCK modes between on and off.

- PANEL LOCK Mode (with Volume)
  Disables reception from all keys and encoders on the front panel except the power button (including the volume).
- PANEL LOCK Mode (without Volume)
  Disables reception from all keys and encoders on the front panel except the power button and volume encoder.
- PANEL LOCK mode is turned off

2.2. Starting up

While holding down buttons "**TUNER PRESET CH +**" and "**ZONE2 SOURCE**" simultaneously, press the power button to turn on the power.
Select the desired mode using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button to confirm.

2.3. Displaying and Selecting Each Mode

The information shown on the display switches each time the "**TUNER PRESET CH +/-**" button is pressed.
Press the "**STATUS**" button to set the currently displayed mode and restart the device.
The setting with "*" is selected for each mode.

①

The buttons on the unit and the master volume knob does not function.

②

The buttons on the unit does not function.

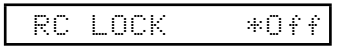
③

The PANEL LOCK mode is turned off.

④

The device cannot be operated by the remote control.

⑤



The REMOTE LOCK mode is turned off.

3-1. Selecting the Mode for Service-related

3-1.1. Actions

Select diagnostic mode (service path check mode), protection history display mode, 232C standby clear mode, Operation Info mode, TUNER STEP mode or Remote ID Setup Mode.

3-1.2. Starting up

AVR-X1700H

- holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-S760H

- holding down buttons "**TUNER PRESET CH +**", "**TUNE -**" and "**TUNE +**" simultaneously, press the power button to turn on the power.

Select the desired mode using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button to confirm.

3-1.3. Displaying and Selecting Each Mode

The information shown on the display switches each time the "**TUNER PRESET CH +**" button is pressed.
Press the "**STATUS**" button to set the currently displayed mode and restart the device.

①

```
1.SERVICE CHECK
```

Service Path Check Mode : See : "DIAGNOSTIC MODE"
The Video and Audio paths can be checked.
This function is convenient for confirming problem paths in the product and checking the paths after repairing.

↓

②

```
2.PROTECTION
```

The protection history can be checked.

↓

③

```
4.OP INFO
```

Operation Info for the unit can be checked.

↓

④E3 and E2 model only

```
5.TUNER FRQ SET
```

Enables reception STEP of the ANALOG TUNER to be changed.

↓

⑤

```
6.REMOTE ID
```

This function is for operating only the desired AV receiver.

3-1.4. Canceling the selected mode

Press the power button to turn off the power.

3-2. Protection History Display Mode

3-2.1. Actions

This mode enables the unit to record and display the event when the THERMAL, ASO or DC protection is activated.
If protections have been activated multiple times, the latest protection operation is recorded.

3-2.2. Starting up

AVR-X1700H

- holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-S760H

- holding down buttons "**TUNER PRESET CH +**", "**TUNE -**" and "**TUNE +**" simultaneously, press the power button to turn on the power.

Select the "**2. PROTECTION**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

3-2.3. Protection information and displays

- Press the "**STATUS**" button in Protection History Display Mode.
- The protection history can be checked.

(1) If no protections has occurred.

(2) ASO (if the last protection is ASO)

Cause A short circuit occurred between the speaker terminals, or speakers with an impedance outside the rating were connected.
Note : Short circuits in speaker terminals or speakers can be identified.
If the power is turned on in the abnormal state, protection is activated after around 6 seconds and the power is turned off.

(3) DC (if the last protection is DC)

Cause : DC output of the power amplifier is abnormal.
If the power is turned on in the abnormal state, protection is activated after around 6 seconds and the power is turned off.

(4) THERMAL (if the last protection is THERMAL(A) or THERMAL(B))

Cause : Abnormal heat sink temperature.
If the power is turned on in the abnormal state, protection is activated after around 6 seconds and the power is turned off.

(5) Case of CURRENT (when the last protection incident is CURRENT protection)

Cause : An over current flowed in power amp.
If the power is turned on in the abnormal state, protection is activated after around 90 seconds and the power is turned off.

Caution : These protections may also be activated due to other factors such as disconnection of connectors or operations around the microcomputer.
After viewing the above protection history, press the "**STATUS**" button to return to the normal display.

3-2.4. Clearing the Protection History

There are two ways to clear the protection history.

(1) Activate Protection History Display Mode. Press the "**STATUS**" button to display the protection history.

Press and hold the "**DIMMER**" button for 3 seconds.

The above message is displayed and the protection history is cleared.

(2) Initialize this unit. (See "POST-SERVICE PRECAUTIONS")

※ Use the method in **3-2.4. (1)** if you do not want to erase your settings from this unit.

Warning Displays by POWER LED

If the power is turned Off while a protection is being detected, the POWER LED flashes in red to warn you depending on the protection status as follows.

(1) ASO/DC protection: Flashes at 0.5-second intervals (0.25 seconds lit, 0.25 seconds unlit)
(2) THERMAL(A/B) protection: Flashes at 2-second intervals (1 seconds lit, 1 seconds unlit)
(3) CURRENT protection: Flashes at 4-second intervals (2 seconds lit, 2 seconds unlit)

3-3. Operation Info Mode

3-3.1. Actions

This mode enables the unit to display the accumulated operating time, power On count and each protection count.

3-3.2. Starting up

AVR-X1700H

- holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-S760H

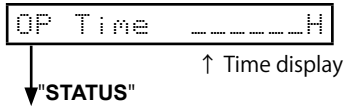
- holding down buttons "**TUNER PRESET CH +**", "**TUNE -**" and "**TUNE +**" simultaneously, press the power button to turn on the power.

Select the "**4. OP INFO**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

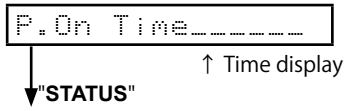
3-3.3. Operations

Press the "**STATUS**" button after starting up this device in Operation Info mode.
The following information is displayed in the following order.

(1) Accumulated operating time

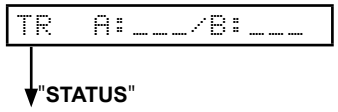


(2) Power On time

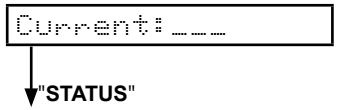


(3) DC / ASO Protection count

(4) Thermal Protection (A/B) count



(5) Current Protection count



(Returns to normal display)

3-4. TUNER STEP mode (E3 / E2 only, Except DABE2)

3-4.1. Actions

This is a special mode for enabling reception STEP of the ANALOG TUNER to be changed.

3-4.2. Starting up

AVR-X1700H

- holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-S760H

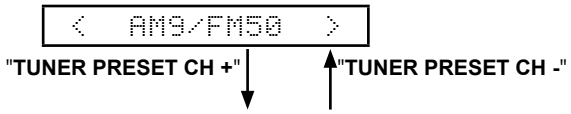
- holding down buttons "**TUNER PRESET CH +**", "**TUNE -**" and "**TUNE +**" simultaneously, press the power button to turn on the power.

Select the "**5. TUNER FRQ SET**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

3-4.3. Displays

Start up this unit in TUNER STEP mode, select the desired option using the "**TUNER PRESET CH +-**" button, then enter using the "**STATUS**" button.
The following information is displayed in the following order.

(1) AM9 kHz / FM50 kHz is selected



(2) AM10 kHz / FM200 kHz is selected

(3) Press the power button to turn off the power.
(4) Press the power button to turn on the power.

3-5. Remote ID Setup Mode

3-5.1. Actions

This function allows only the desired AV receiver to be operated if multiple DENON AV receivers are used in the same room.

3-5.2. Starting up

AVR-X1700H

- holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

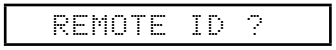
AVR-S760H

- holding down buttons "**TUNER PRESET CH +**", "**TUNE -**" and "**TUNE +**" simultaneously, press the power button to turn on the power.

Select the "**6. REMOTE ID**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.

3-5.3. Operations

(1) When Remote ID Setup mode is activated, the following message is displayed.



(2) Press the desired "**QUICK SELECT 1 - 4**" button.

Button	Display
QUICK SELECT 1	REMOTE ID 1
QUICK SELECT 2	REMOTE ID 2
QUICK SELECT 3	REMOTE ID 3
QUICK SELECT 4	REMOTE ID 4

(3) Press the power button to turn off the power.
(4) Press the power button to turn on the power.

※ Only "**QUICK SELECT 1 - 4**" and the POWER button on the unit can be used in Remote ID Setup Mode.
※ The remote ID of the remote control supplied with this unit cannot be changed.

NOTE :
If the ID of the unit and remote control do not match, "**AVAMP**∗" appears on the display of the unit when the remote control is used
(∗ : own remote control ID).

4. Protection Pass Mode

4.1. Actions

- This mode allows the power to be turned on without activating protections.
- This mode functions in the same way as normal power-on, except that protections are not activated.
- When using the protection pass mode, do not connect speakers to the speaker terminals.

4.2. Operations

AVR-X1700H

- holding down buttons "**TUNER PRESET CH +**", "**ZONE2 SOURCE**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-S760H

- holding down buttons "**ZONE2 SOURCE**", "**TUNER PRESET CH +**" and "**TUNE +**" simultaneously, press the power button to turn on the power.

The device returns to the normal display message after the following is displayed.

This is displayed for 5 seconds before returning to the normal display.

5. Network Initialization Mode

5.1. Actions

The following items are initialized.

(1) Network setup
(2) Friendly Name
(3) Auto Update setting
(4) Allow Update setting
(5) Time Zone setting
(6) Queue list
(7) Internet Radio recently played station
(8) Quick Select playback station
(9) AirPlay Password
(10) Bluetooth Pairing History

5.2. Operations

AVR-X1700H

- When the power is on and the input source is HEOS Music, press and hold the "**TUNER PRESET CH +**" and "**ZONE2 ON/OFF**" buttons for more than 3 seconds.

AVR-S760H

- When the power is on and the input source is HEOS Music, press and hold the "**ZONE2 SOURCE**" and "**ZONE2 ON/OFF**" buttons for more than 3 seconds.

Initializing Display

Complete Display

This is displayed for 5 seconds before returning to the normal display.

6. Clearing the Operation Info

6.1. Actions

• Displays the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection.

6.2. Operations

Remove all input/output terminals and the AC plug.
Connect the AC plug again and place the product in standby mode.

AVR-X1700H

• While holding down buttons "**ZONE2 SOURCE**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-S760H

• While holding down buttons "**TUNER PRESET CH +**" and "**TUNE +**" simultaneously, press the power button to turn on the power.

When "**PRODUCT MODE**" appears on the display, release the button and press the button "**power**" → "**ZONE2 ON/OFF**"(only AVR-X1700H E3) to place the product in standby mode.

7. Log Capture feature

7.1. Actions

• Acquires the Network Module log.
• The log is deleted when the Network Module is deleted.
If an error occurs, it is acquired without turning off the power of this unit.
• The log can be copied to a writable USB flash drive.
It can also be sent to a server if this unit is connected to the Internet.
• The log is stored in the root folder of the USB flash drive with the name "**logs-<friendlyname>-<number>.tar.gz**".
<**friendlyname**> indicates the friendly name and <**number**> indicates the sequence number.
Previous logs on the USB flash drive are not overwritten. The log is encrypted.

7.2. Starting up

AVR-X1700H

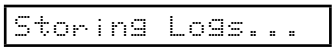
• While the power is On, hold down buttons "**TUNER PRESET CH +**", "**ZONE2 SOURCE**" and "**STATUS**" for at least 3 seconds.

AVR-S760H

• While the power is on, hold down buttons "**MOVIE UP**" and "**MUSIC**" for at least 3 seconds.

7.2.1. If the USB flash drive is connected after starting the unit

(1) The log is written to the USB flash drive and "**Storing Logs...**" is displayed.
The log is also sent to the server.



(2) When a log package is saved to a USB flash drive, "**USB SUCCESS**" appears in the display for 5 seconds, regardless of whether the upload to the server was successful.

(3) When saving of the log package fails, "**USB FAILED**" appears in the display for 5 seconds, regardless of whether the upload to the server was successful.

7.2.2. When the USB flash drive is not connected after startup, and this unit is connected to the Internet.

(1) The log is sent to the server and the display shows "**Storing Logs...**" for 5 seconds.

(2) When the log package is uploaded, the ticket numbers "**XXXXX**" and "**Push ENTER**" are displayed until the "**Enter**" or "**Back**" button of RC is pressed.

(3) If the log package upload fails, "**FAILED**" is displayed for 5 seconds.

8. Protection popups

1. Overview

When the power is turned on after protection is activated, a popup will prompt you to check the connection of the speaker cables and the ventilation around the unit before taking this product to one of our service centers.
Protection popups appear when ASO or thermal protection is activated.

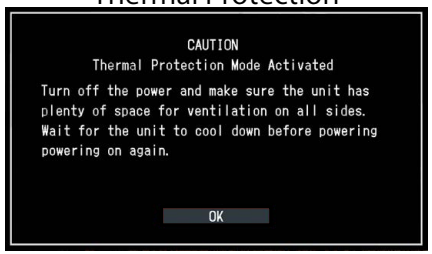
2. Actions

(1) When the user turns on the power after it is turned off by ASO or thermal protection, a popup corresponding to the protection that was activated is displayed.

ASO Protection

CAUTION
Speaker Protection Mode Activated
Turn off the power and check all speaker wires to make sure they are properly connected and not touching each other or the back panel.
OK

Thermal Protection

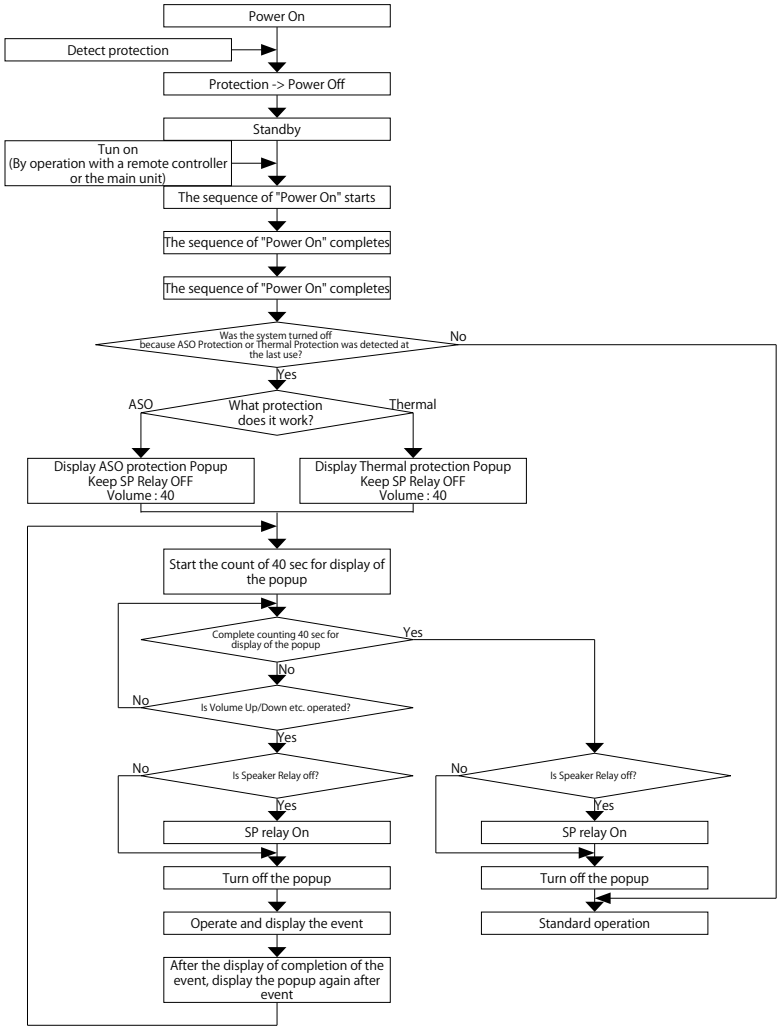

CAUTION
Thermal Protection Mode Activated
Turn off the power and make sure the unit has plenty of space for ventilation on all sides. Wait for the unit to cool down before powering powering on again.
OK

- Speaker Relay is turned off and the volume of the main zone is set to 40 while the popup is displayed to prevent protection from being activated again.
- The same message also scrolls through the display while the popup is displayed.
- If an abnormality occurs again while the popup is displayed, the power will turn off as it usually does in the case of abnormalities.

(2) To clear the popup, press the ENTER button to select OK. Otherwise, the popup disappears 40 seconds after being displayed. Speaker Relay turns on and normal operation resumes when the popup disappears.

- Protection popups are only displayed once, when the power is turned on after protection is activated.
  If you need to confirm the type of protection that was activated (ASO or thermal) later, use the protection history display mode.

Below is a basic flowchart of how the protection popups operate.


Power On
Detect protection
Protection -> Power Off
Standby
Tun on
(By operation with a remote controller or the main unit)
The sequence of "Power On" starts
The sequence of "Power On" completes
The sequence of "Power On" completes
Was the system turned off because ASO Protection or Thermal Protection was detected at the last use?
No
Yes
ASO
What protection does it work?
Thermal
Display ASO protection Popup
Keep SP Relay OFF
Volume : 40
Display Thermal protection Popup
Keep SP Relay OFF
Volume : 40
Start the count of 40 sec for display of the popup
Complete counting 40 sec for display of the popup
Yes
No
No
Is Volume Up/Down etc. operated?
Yes
No
Is Speaker Relay off?
Yes
No
Is Speaker Relay off?
Yes
SP relay On
SP relay On
Turn off the popup
Turn off the popup
Operate and display the event
After the display of completion of the event, display the popup again after event
Standard operation

Service Path Check Mode

1.1. Actions

This function is convenient for confirming problem paths in the product and checking the paths after repairing.
The video system and audio system operation paths can be checked.
The backup data is not rewritten.

1.2. Starting up

AVR-X1700H

- holding down buttons "**ZONE2 SOURCE**", "**DIMMER**" and "**STATUS**" simultaneously, press the power button to turn on the power.

AVR-S760H

- holding down buttons "**TUNER PRESET CH +**", "**TUNE -**" and "**TUNE +**" simultaneously, press the power button to turn on the power.

Select the "**1. SERVICE CHECK**" using the "**TUNER PRESET CH +/-**" button, then press the "**STATUS**" button then to confirm.
The "**TUNED**", "**STEREO**" and "**RDS**" segments are lit in this mode.

1.3. Canceling diagnostic mode

Press the power button to turn off the power.

1.4. Selecting items to check

Press the ① button to switch between video items and audio items.
Press the ② or ③ button to select the previous or next item.

	The unit			Remote control unit		
Actions	①	②	③	①	②	③
	Audio ⇔ Video	PREVIOUS	NEXT	Audio ⇔ Video	PREVIOUS	NEXT
Button	DIMMER	QUICK SELECT 1	QUICK SELECT 2	SLEEP	CURSOR ◄	CURSOR ►

1.5. Audio system confirmation items

See the block diagram fig.AXXth.

Paths to be confirmed			Display	Settings	What to confirm
1	Analog	fig.A01	A01:ANALOG PASS	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : DIRECT Amp assign : Surround Back MAIN ZONE : On ZONE2 : Off	• Analog input ⇒ Speaker output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
2	DIGITAL (MAIN)	fig.A02a fig.A02b	A02:DIGITAL	Input Source : CBL/SAT Input Mode : DIGITAL (fixed) Sound mode : MULTI CH STEREO Amp assign : Surround Back Speaker Config ALL Speaker = Small/SW=Yes MAIN ZONE : On ZONE2 : Off	• Digital input ⇒ Pre output (Front L/R, Center, Surround L/R, Surround Back L/R) • Digital input ⇒ Pre OUT output (Subwoofer) (※ The input source can be switched to any source except CBL/SAT.)
3	DIGITAL (ZONE2)	fig.A03a fig.A03b	A03:DIGITAL-Z2	Input Source : HEOS Music Input Mode : Auto Sound mode : STEREO ZONE2 Source : HEOS Music Amp assign : ZONE2 MAIN ZONE : On ZONE2 : On	• Digital(PCM) input ⇒ Speaker output (Surround Back (ZONE2) L/R) • Digital(PCM) input ⇒ Pre OUT output (ZONE2 L/R) (Only X1700 E3)

Paths to be confirmed			Display	Settings	What to confirm
4	HDMI	fig.A04a fig.A04b	A05:HDMI	Input Source : CBL/SAT Input Mode : HDMI (fixed) Sound mode : STEREO Amp assign : Surround Back MAIN ZONE : On ZONE2 : Off	• HDMI input ⇒ Speaker output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
5	Analog AD (MAIN ZONE)	fig.A05a fig.A05b	A06:AD	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : MULTI CH STEREO Vol 60(-20dB) Amp assign : Surround Back Speaker Config ALL Speaker = Small/SW = Yes MAIN ZONE : On ZONE2 : Off	• Analog input ⇒ Speaker output (Front L/R, Center, Surround L/R, Surround Back L/R) • Analog input ⇒ Pre OUT output SW(20Hz) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
6	Analog Amp Assign (Amp Assign : ZONE2)	fig.A06	A07:ASSIGN-Z2	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Z2 Source : CBL/SAT(select a setting other than Source) Vol 60(-20dB) Amp assign : ZONE2 MAIN ZONE : On ZONE2 : On	• Analog input ⇒ Speaker output (Surround Back (ZONE2) L/R) • Analog input ⇒ Pre OUT output (ZONE2 L/R) (Only X1700 E3) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
7	ZONE2 Downmix (Amp Assign : ZONE2)	fig.A07a fig.A07b	A22:Z2 Downmix	Input Source : CBL/SAT Input Mode : Auto ZONE2 Source : Source ZONE2 Vol : 60 Amp Assign : ZONE2 MAIN ZONE : On ZONE2 : On	• Analog input ⇒ Speaker output (Surround Back (ZONE2) L/R) • Analog input ⇒ Pre OUT output (ZONE2 L/R) (Only X1700 E3) (※ The input source can be switched to any source except CBL/SAT.) (Leave the ZONE2 Source as Source.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)

1.6. Confirmation items for the video system

See the block diagram fig.VXXth.

Paths to be confirmed			Display	Settings	What to confirm
1	Analog Video pass	fig.V01	V01:VIDEO PASS	Input Source : CBL/SAT MAIN ZONE : On ZONE2 : On	• CVBS input ⇒ CVBS output (※ The input source can be switched to any source except CBL/SAT.)
2	HDMI pass	fig.V02	V03:HDMI PASS	Input Source : CBL/SAT MAIN ZONE : On ZONE2 : Off	• HDMI input (except 4K) ⇒ HDMI output (except 4K) • HDMI input (4K) ⇒ HDMI output (4K) & Vol display (※ The input source can be switched to any source except CBL/SAT.)
3	HDMI CEC	fig.V03	V04:HDMI CEC	Input Source : CBL/SAT HDMI Control : On MAIN ZONE : On ZONE2 : Off	• When the TV to Standby in HDMI OUT, make sure that the AMP is in Standby. (※ The input source can be switched to any source except CBL/SAT.) • The ARC path can also be checked (check this using the TV input source).
4	HDMI Audio (Audio : AVR)	fig.V04a fig.V04b	V05:H.AUDIO-AVR	Input Source : CBL/SAT HDMI Control : Off HDMI Audio : AVR (if checking the audio output from AVR)	• HDMI input (PCM, DolbyDigital, DTS) ⇒ Speaker output. • HDMI input(HD audio) ⇒ Speaker output. (※ The input source can be switched to any source except CBL/SAT.)
5	HDMI Audio (Audio : TV)	fig.V05	V06:H.AUDIO-TV	HDMI Audio : TV (if checking the audio output from TV)	• HDMI input (PCM, DolbyDigital, DTS) ⇒ HDMI output (audio output from connected TV) (※ The input source can be switched to any source except CBL/SAT.)
6	GUI	fig.V06	V07:GUI MENU ON	Input Source : CBL/SAT Setup Menu : On MAIN ZONE : On ZONE2 : Off	• GUI display ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)

fig.A01

AVRS760H/X1700H ANALOG AUDIO BLOCK

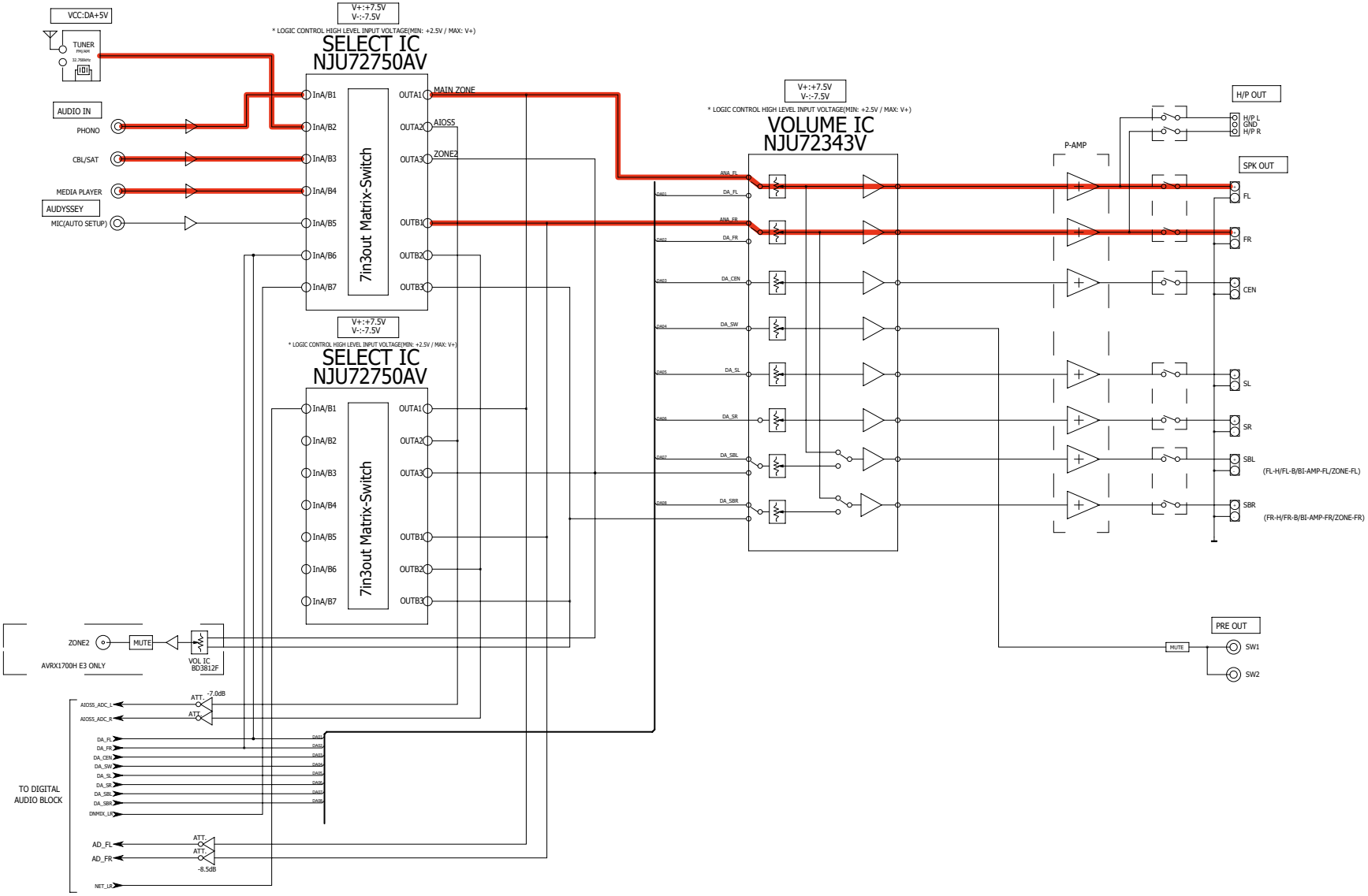


fig.A02a

AVRS760H/X1700H DIGITAL AUDIO BLOCK

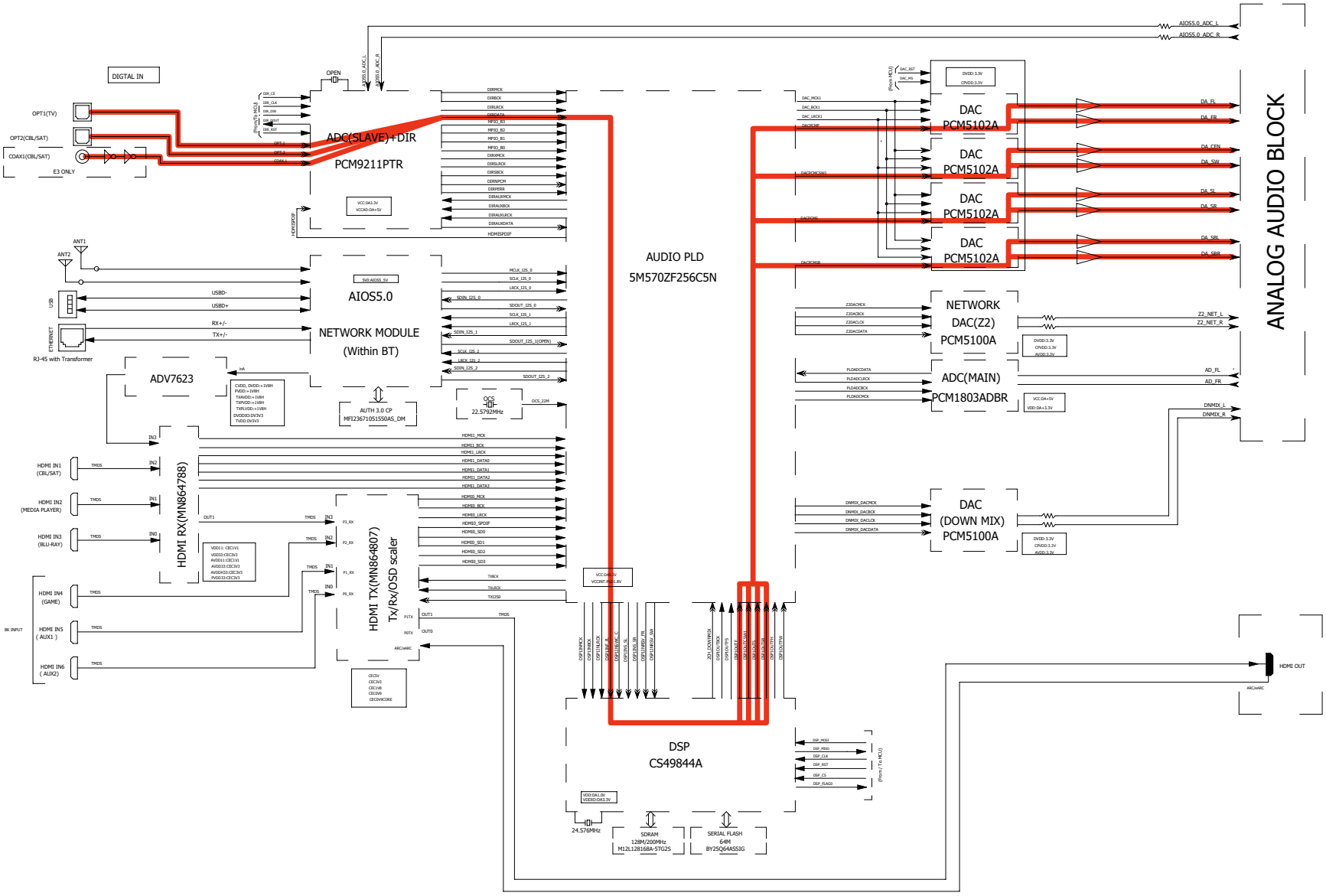


fig.A02b

AVRS760H/X1700H ANALOG AUDIO BLOCK

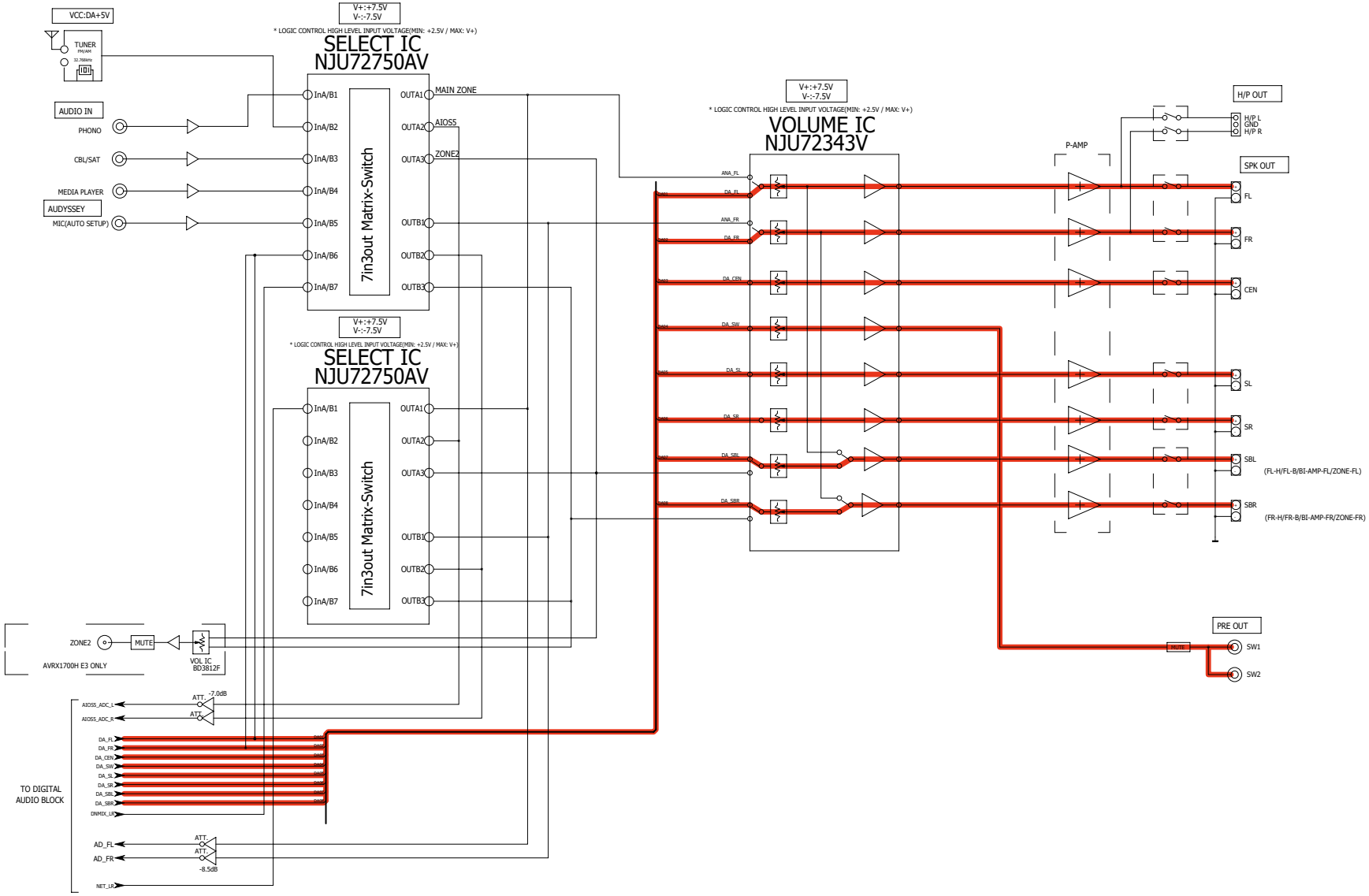


fig.A03a

AVRS760H/X1700H DIGITAL AUDIO BLOCK

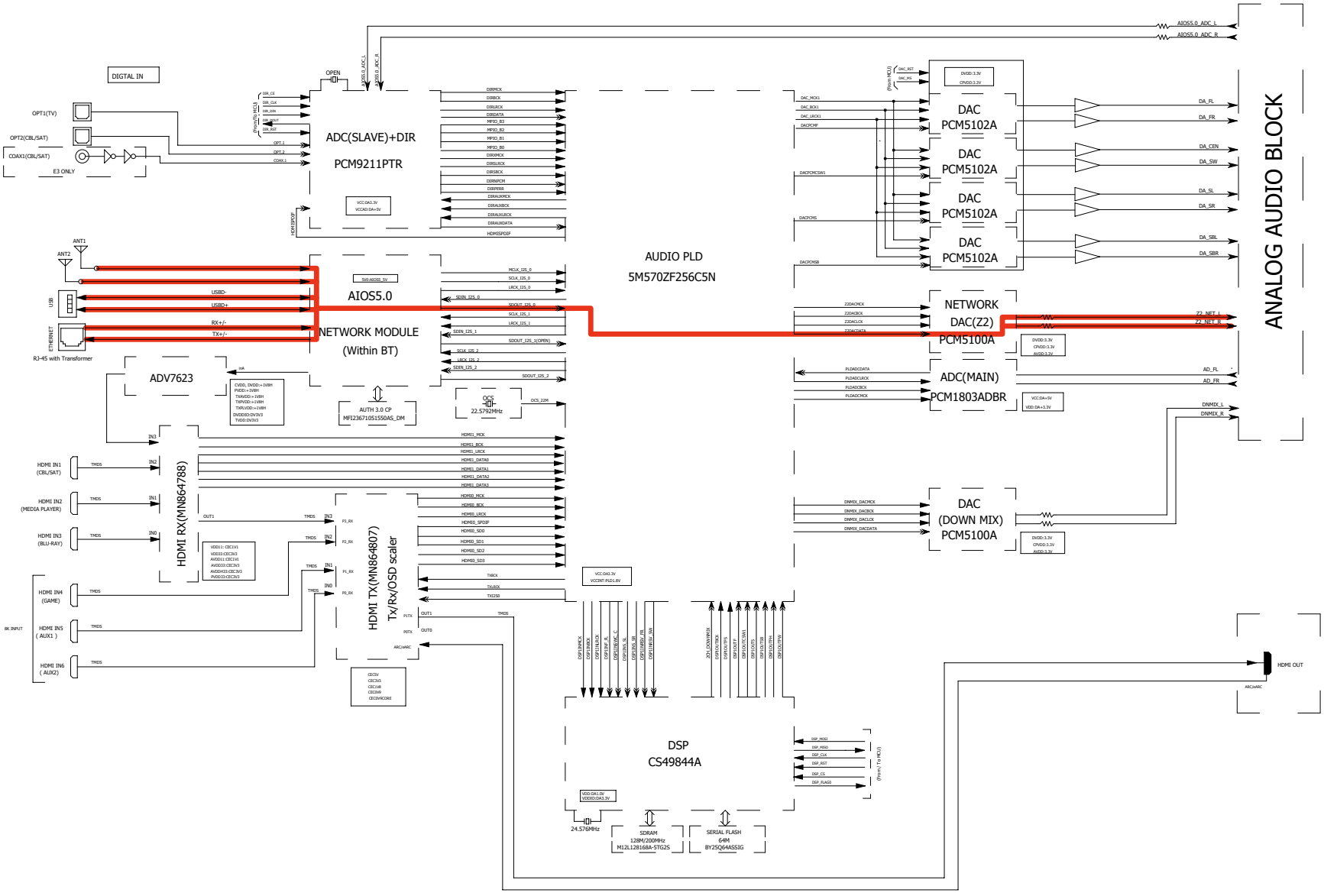


fig.A03b

AVRS760H/X1700H ANALOG AUDIO BLOCK

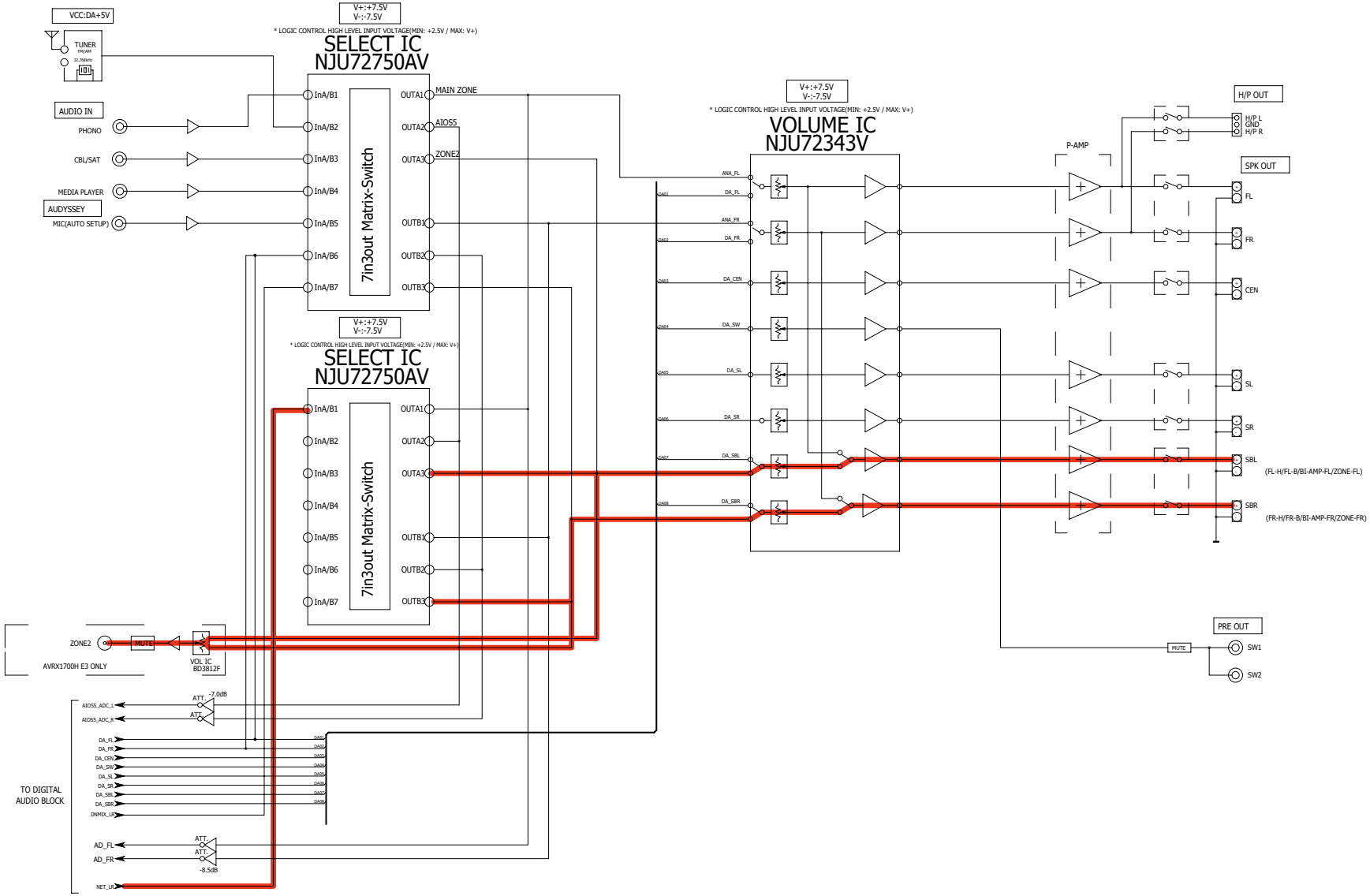


fig.A04a

AVRS760H/X1700H DIGITAL AUDIO BLOCK

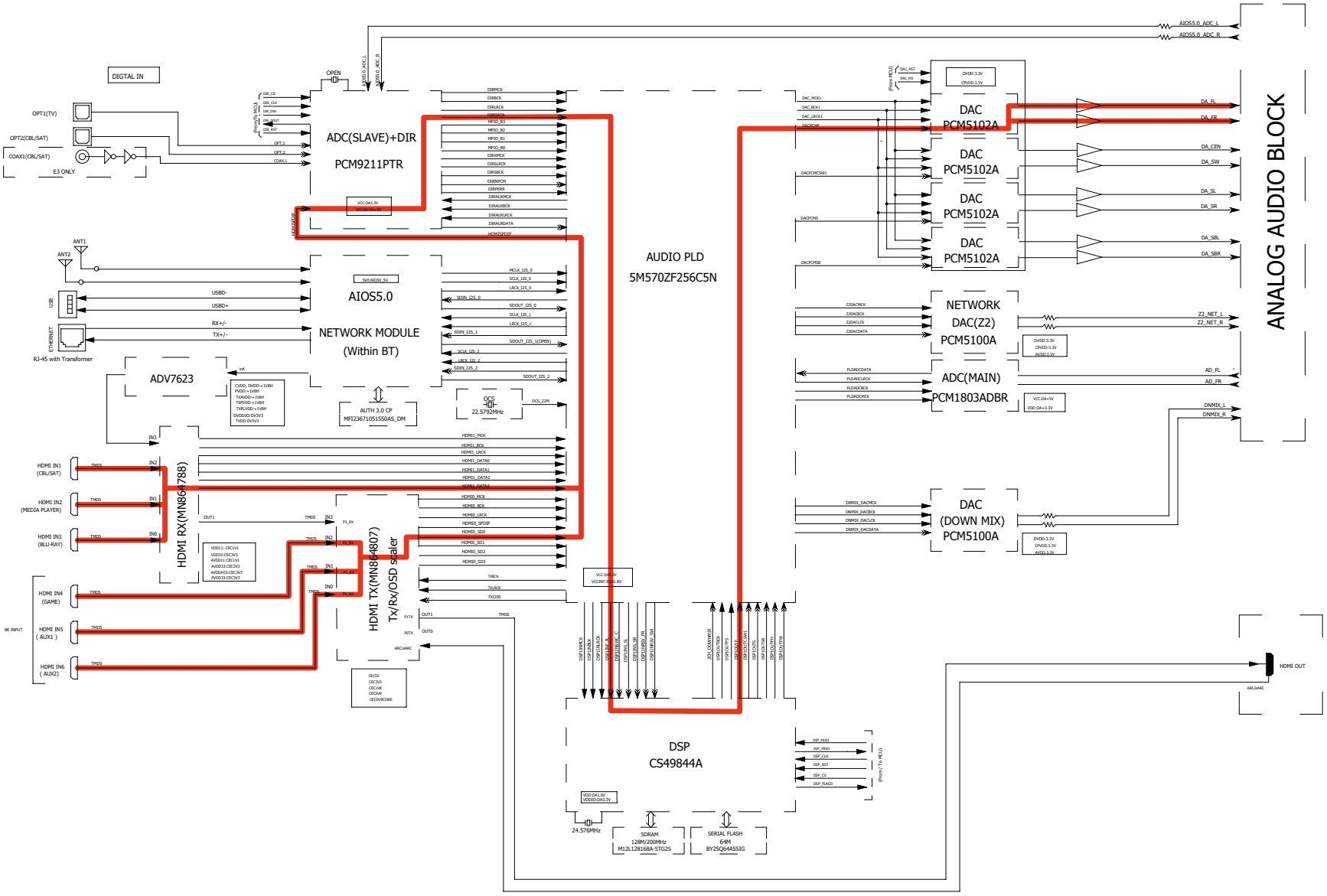


fig.A04b

AVRS760H/X1700H ANALOG AUDIO BLOCK

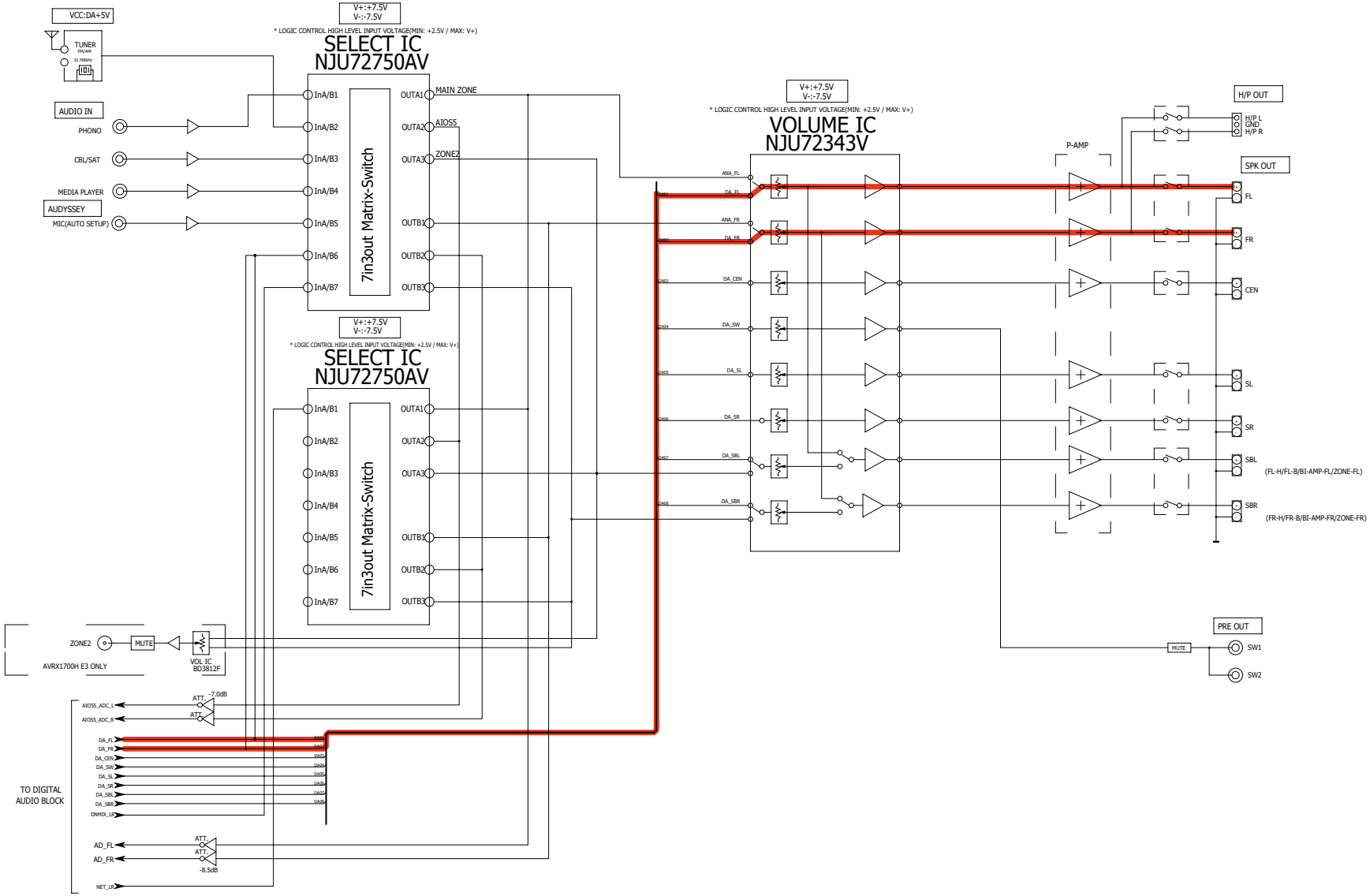


fig.A05a

AVRS760H/X1700H DIGITAL AUDIO BLOCK

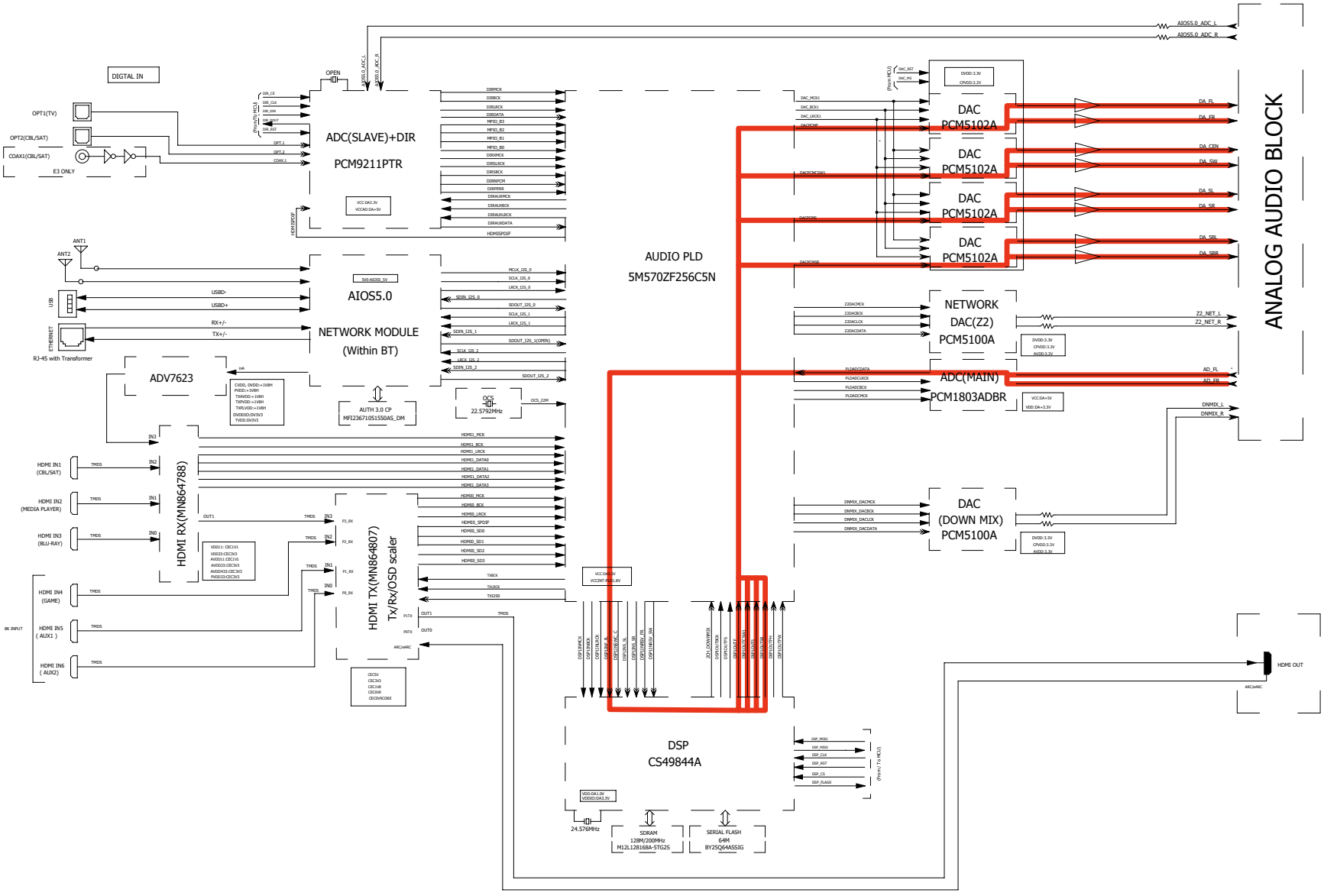


fig.A05b

AVRS760H/X1700H ANALOG AUDIO BLOCK

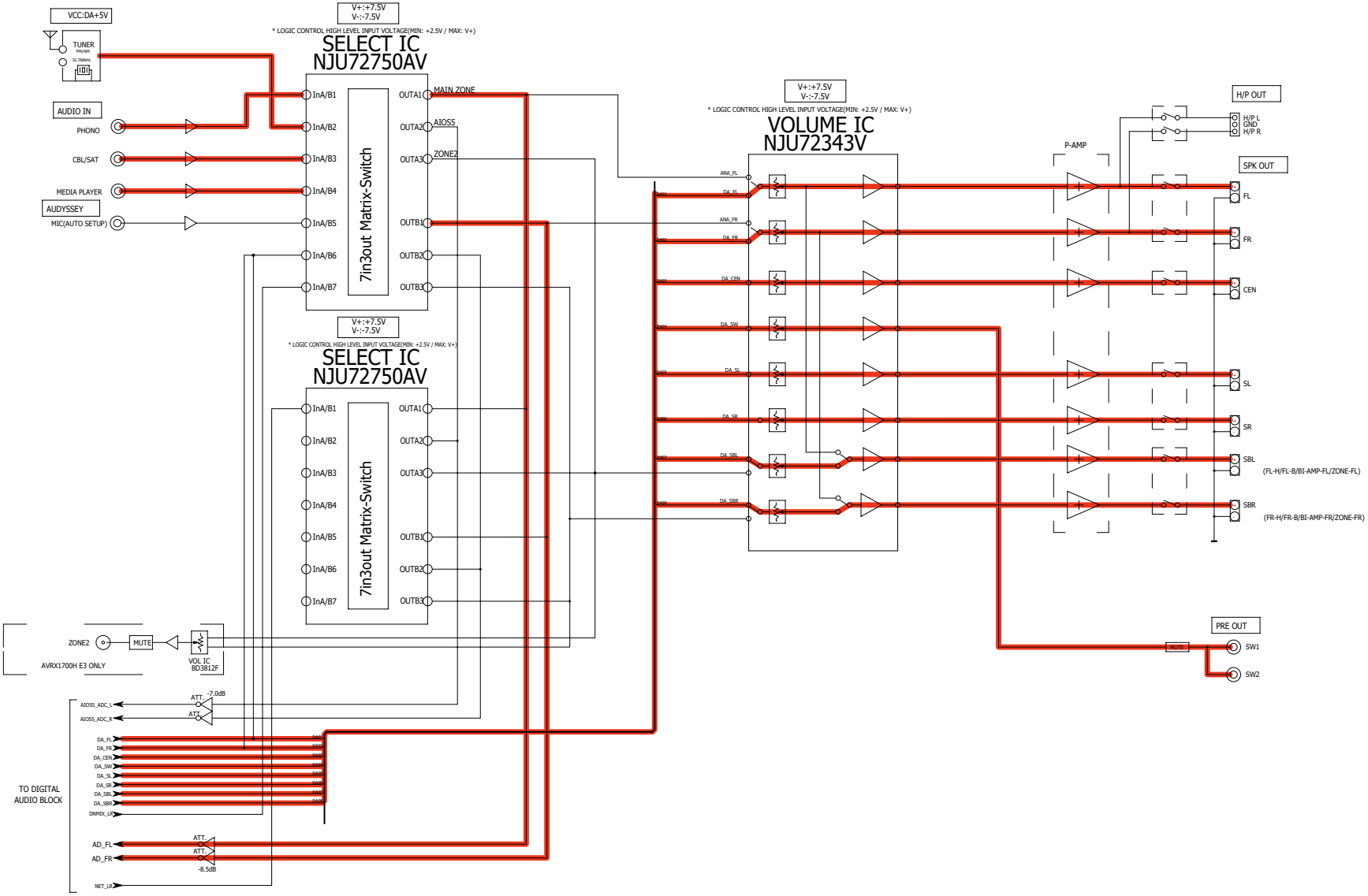


fig.A06

AVRS760H/X1700H ANALOG AUDIO BLOCK

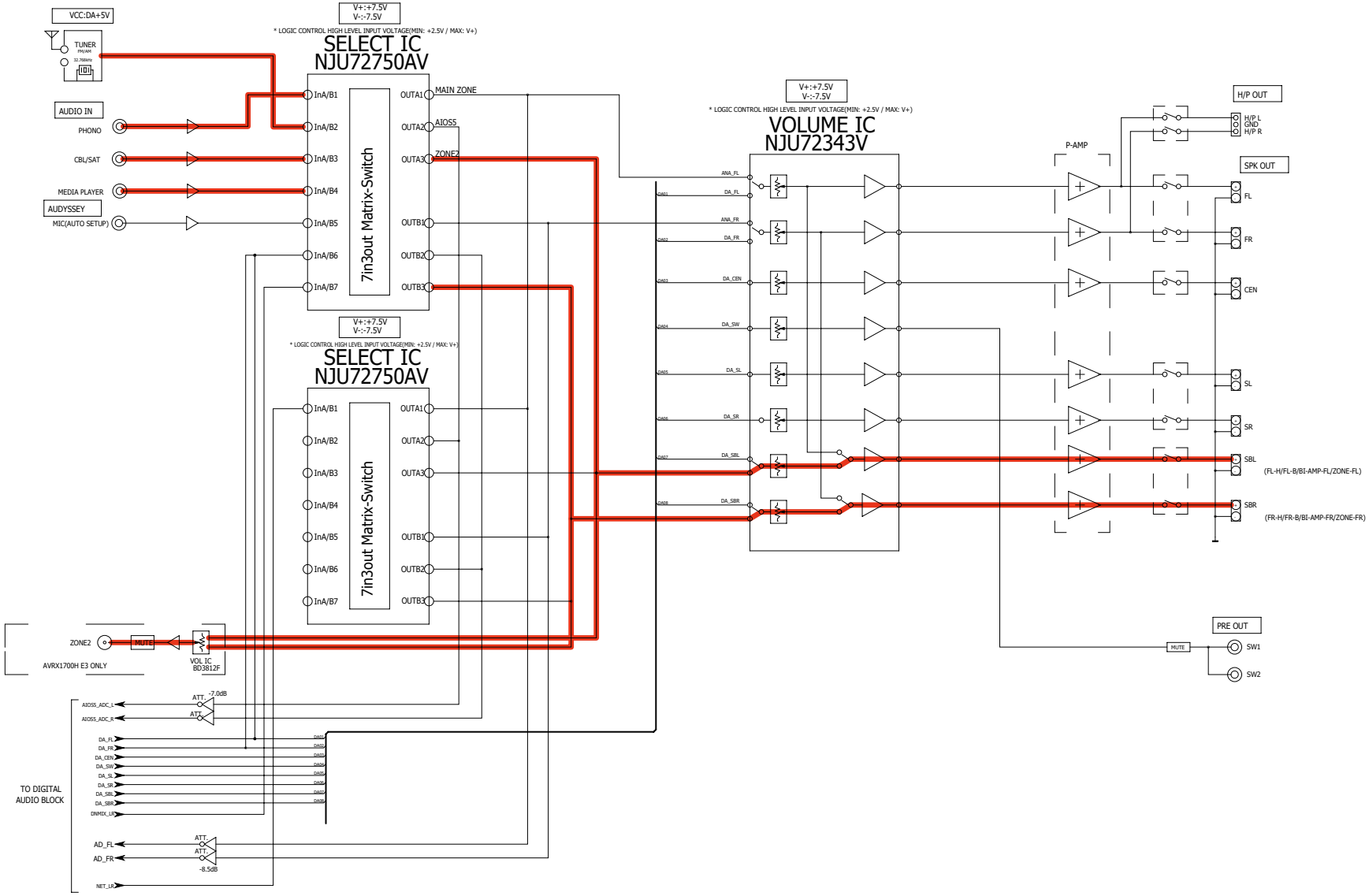


fig.A07a

AVRS760H/X1700H DIGITAL AUDIO BLOCK

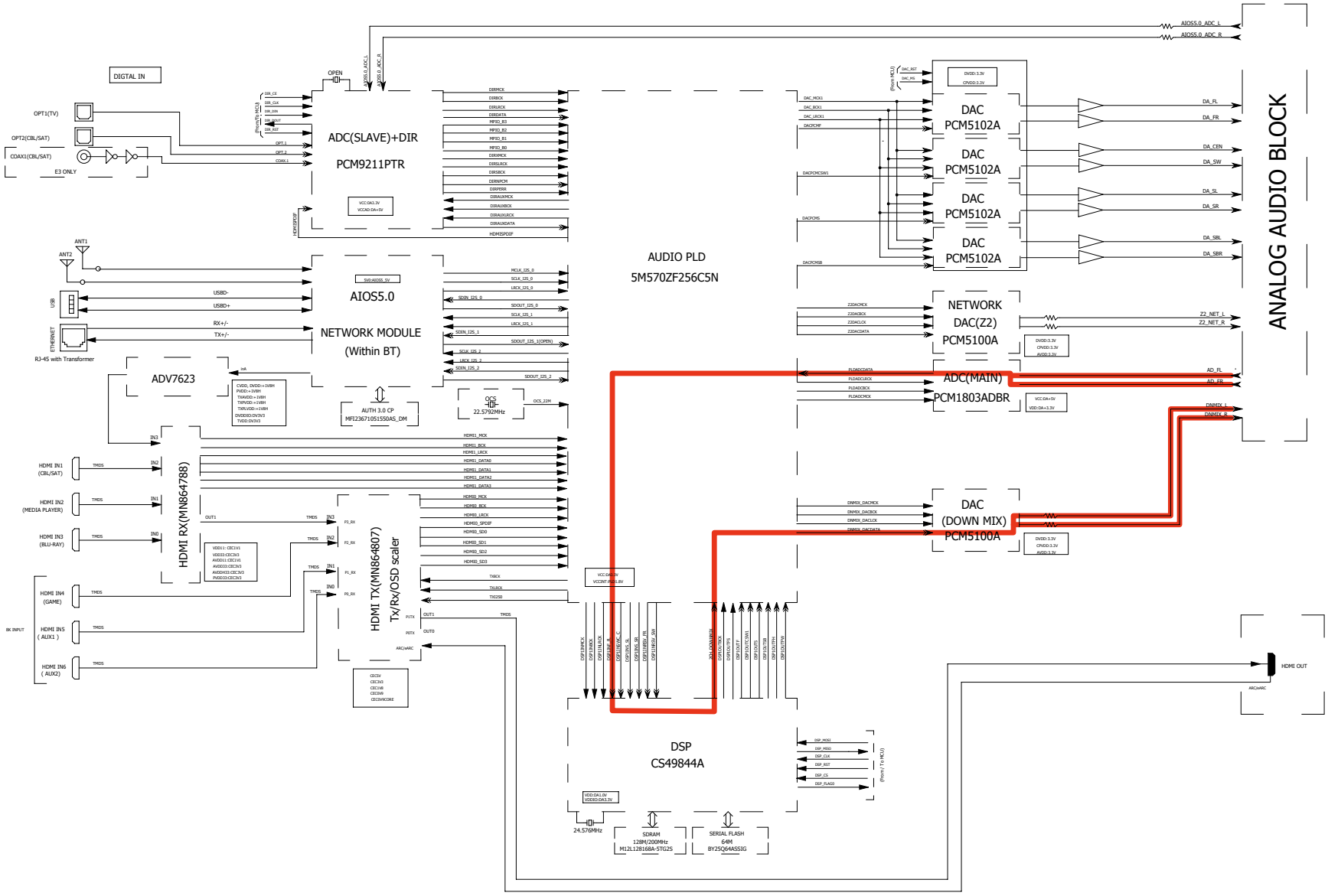


fig.A07b

AVRS760H/X1700H ANALOG AUDIO BLOCK

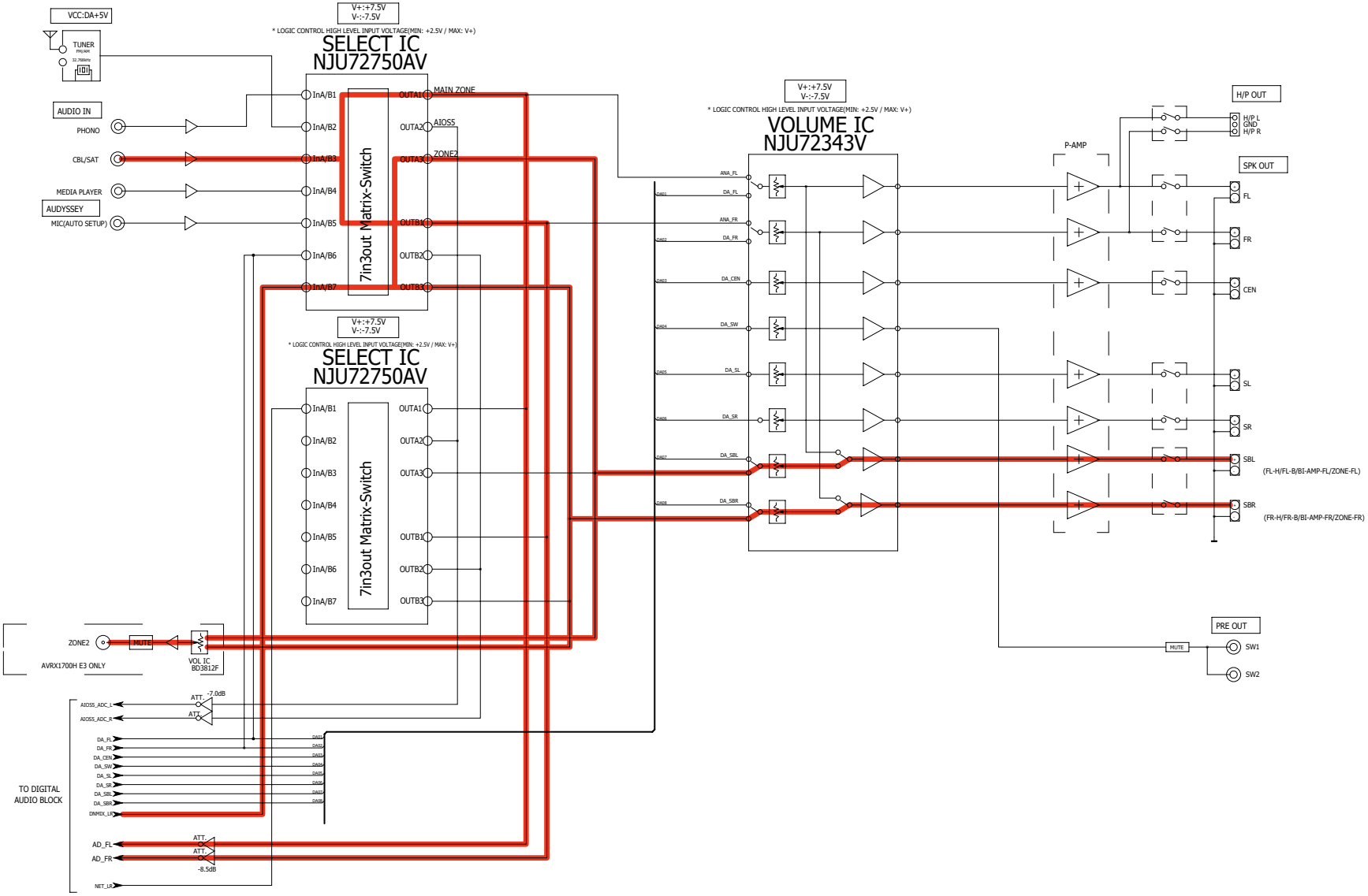
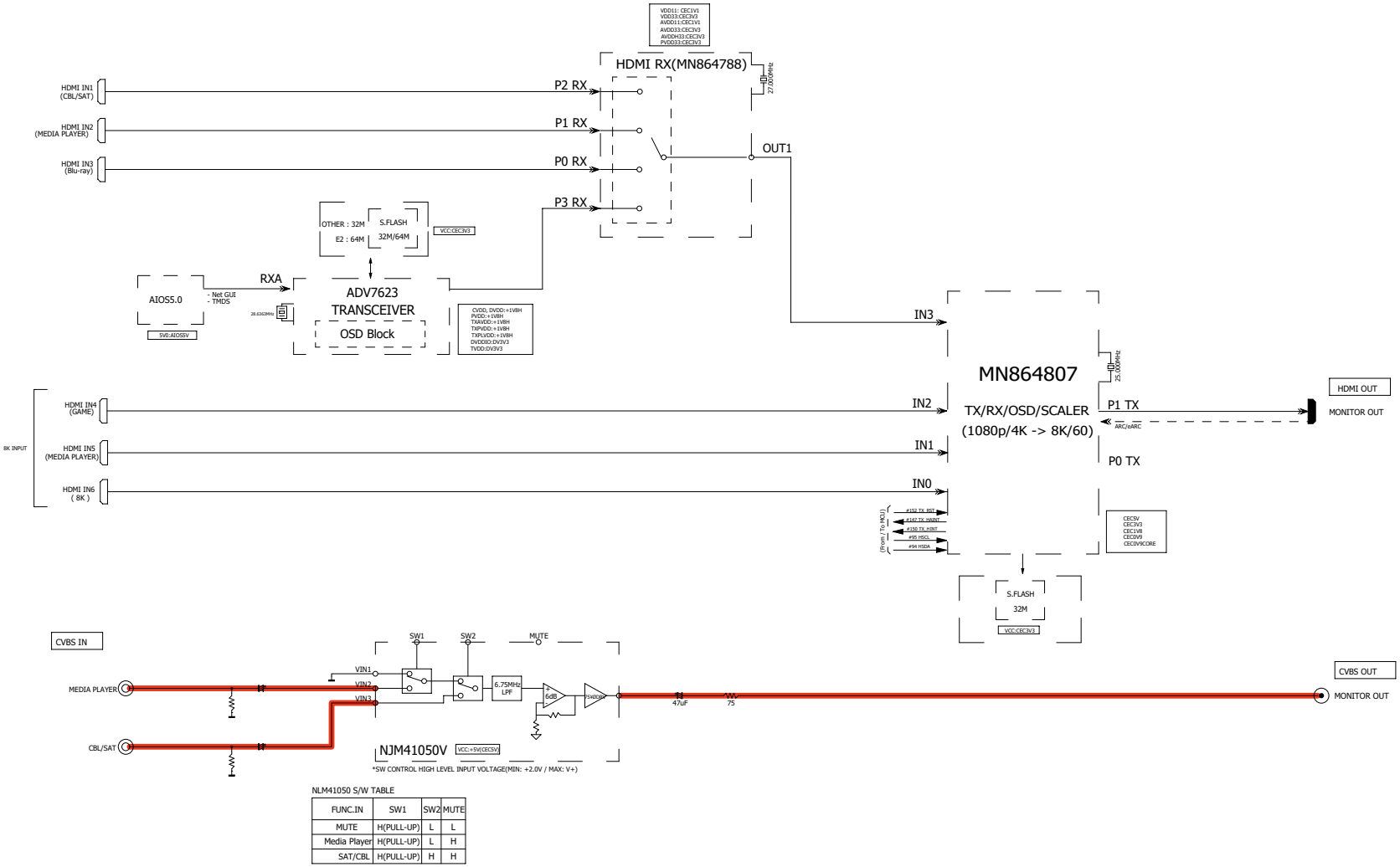


fig.V01

AVRS760H/X1700H VIDEO BLOCK

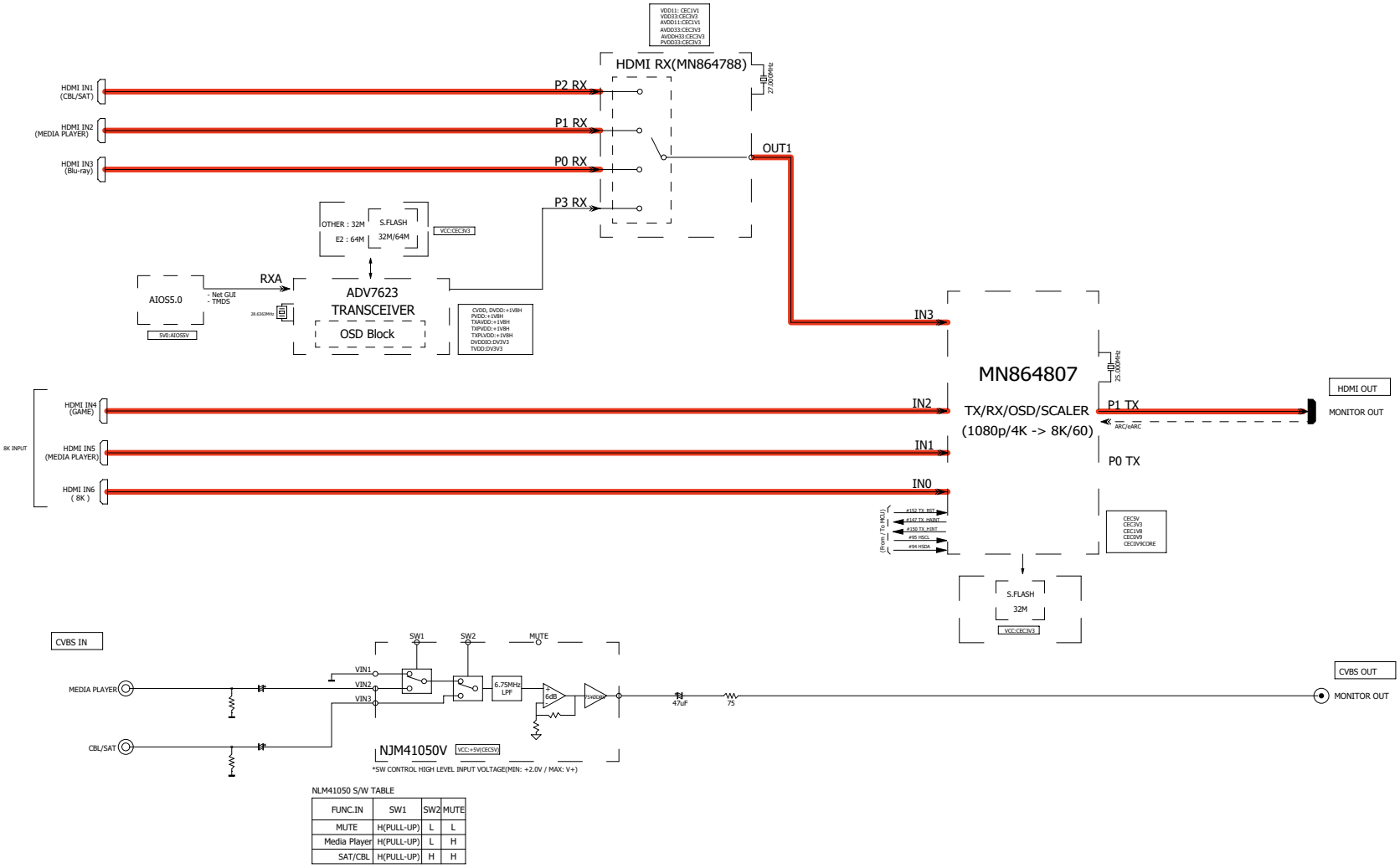


NLM41050 S/W TABLE

FUNC.IN	SW1	SW2	MUTE
MUTE	H(PULL-UP)	L	L
Media Player	H(PULL-UP)	L	H
SAT/CBL	H(PULL-UP)	H	H

fig.V02

AVRS760H/X1700H VIDEO BLOCK

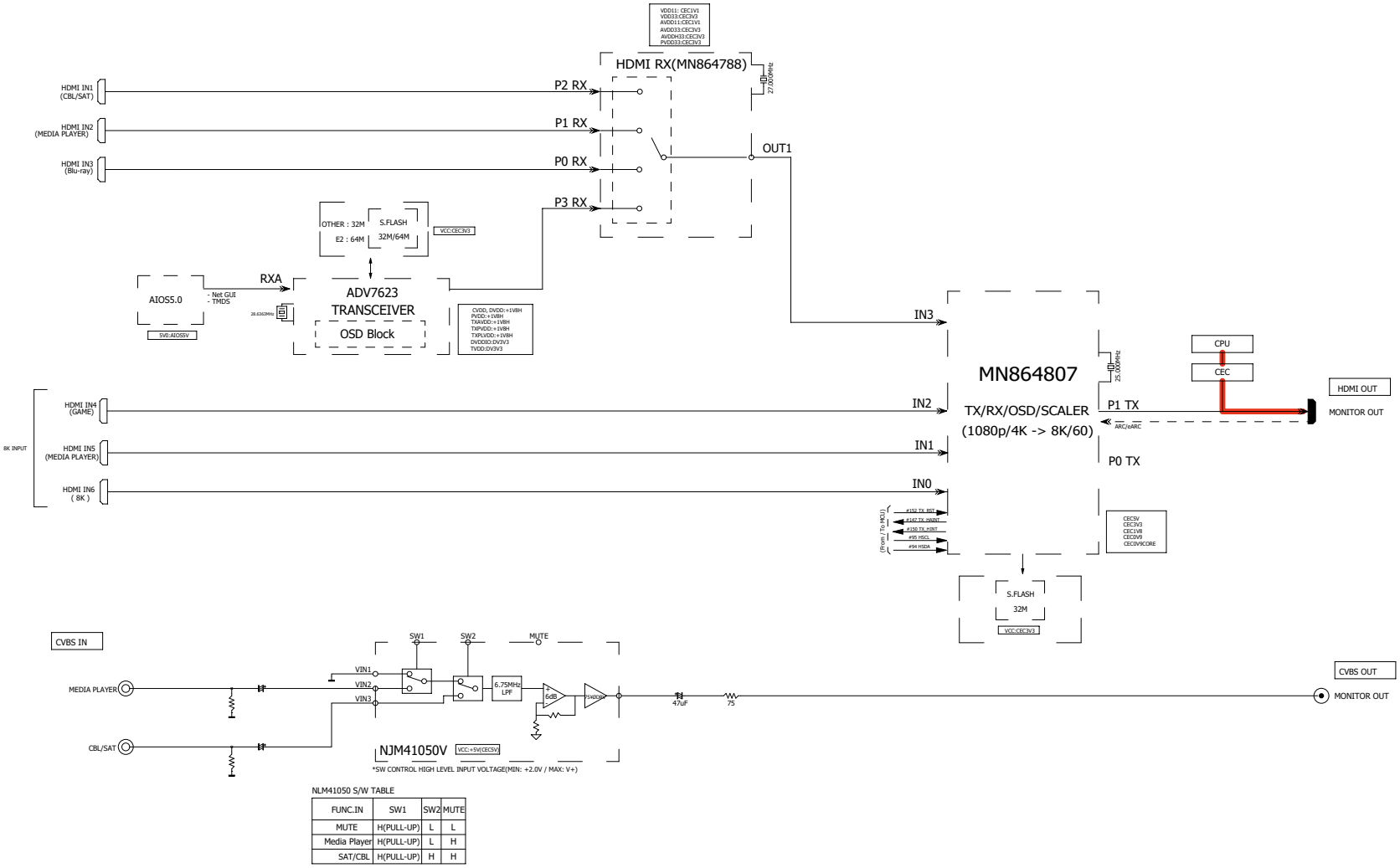


NLM41050 S/W TABLE

FUNC.IN	SW1	SW2	MUTE
MUTE	H(PULL-UP)	L	L
Media Player	H(PULL-UP)	L	H
SAT/CBL	H(PULL-UP)	H	H

fig.V03

AVRS760H/X1700H VIDEO BLOCK



NLM41050 S/W TABLE

FUNC.IN	SW1	SW2	MUTE
MUTE	H(PULL-UP)	L	L
Media Player	H(PULL-UP)	L	H
SAT/CBL	H(PULL-UP)	H	H

fig.V04a

AVRS760H/X1700H DIGITAL AUDIO BLOCK

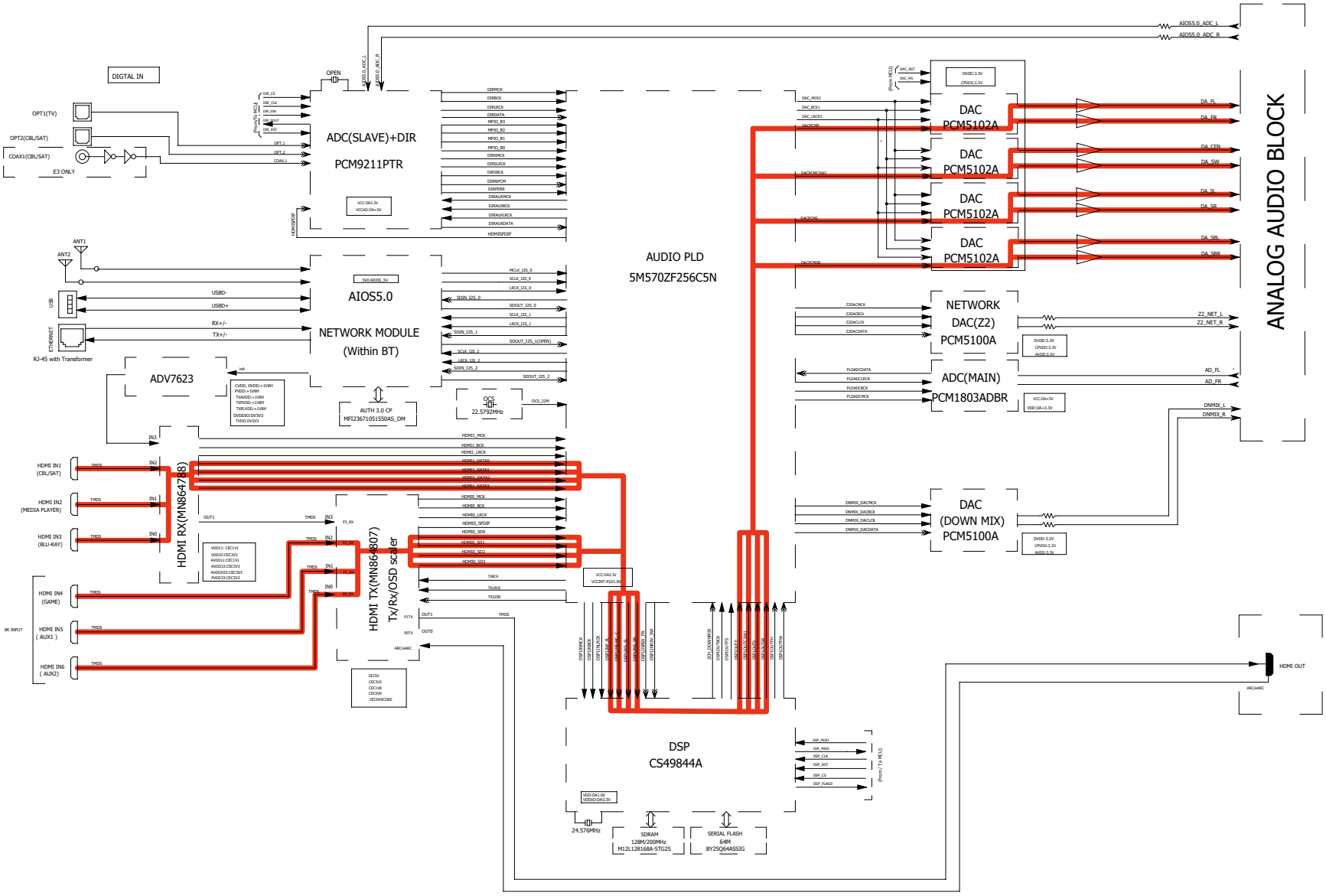


fig.V04b

AVRS760H/X1700H ANALOG AUDIO BLOCK

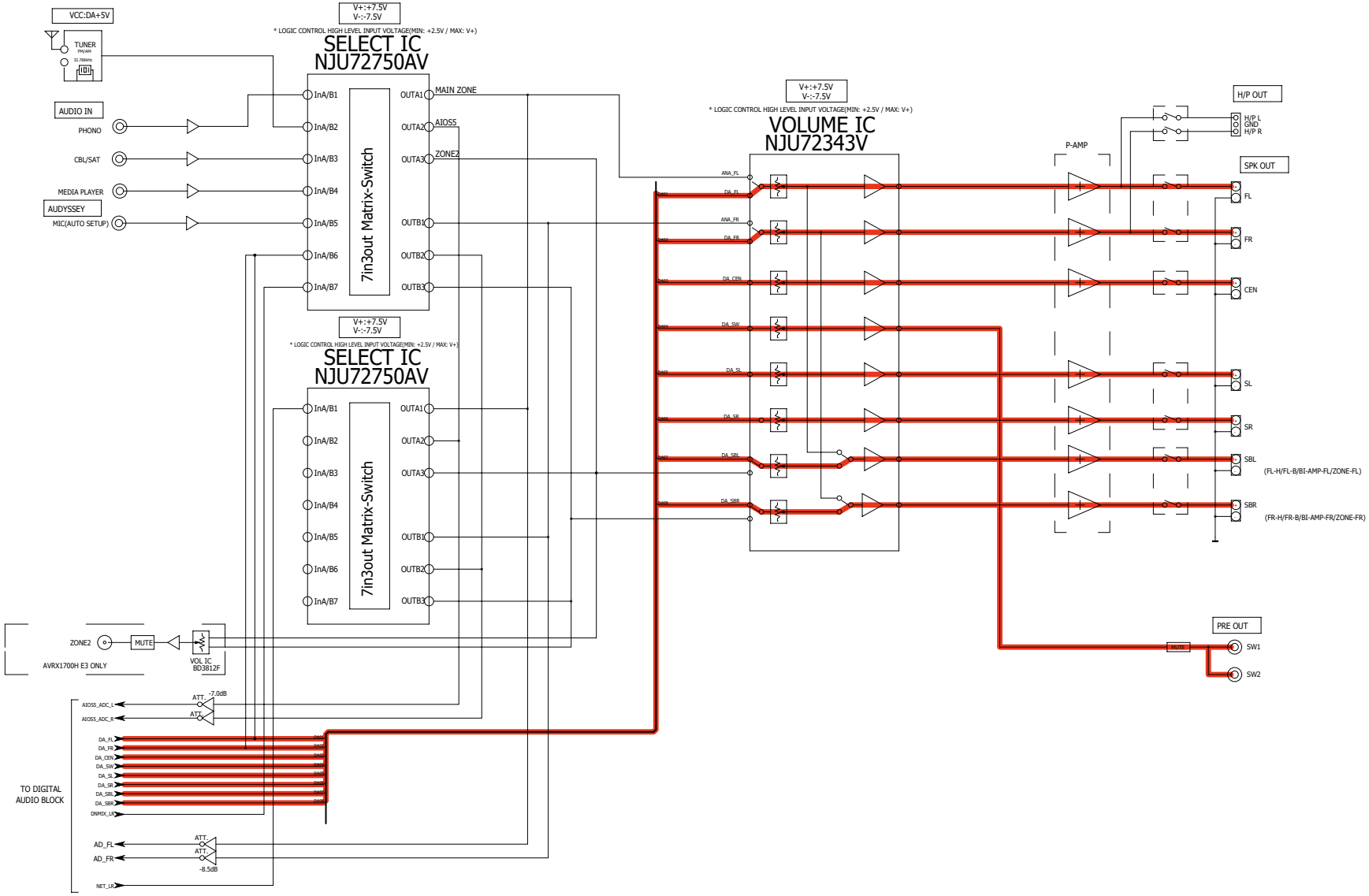


fig.V05

AVRS760H/X1700H DIGITAL AUDIO BLOCK

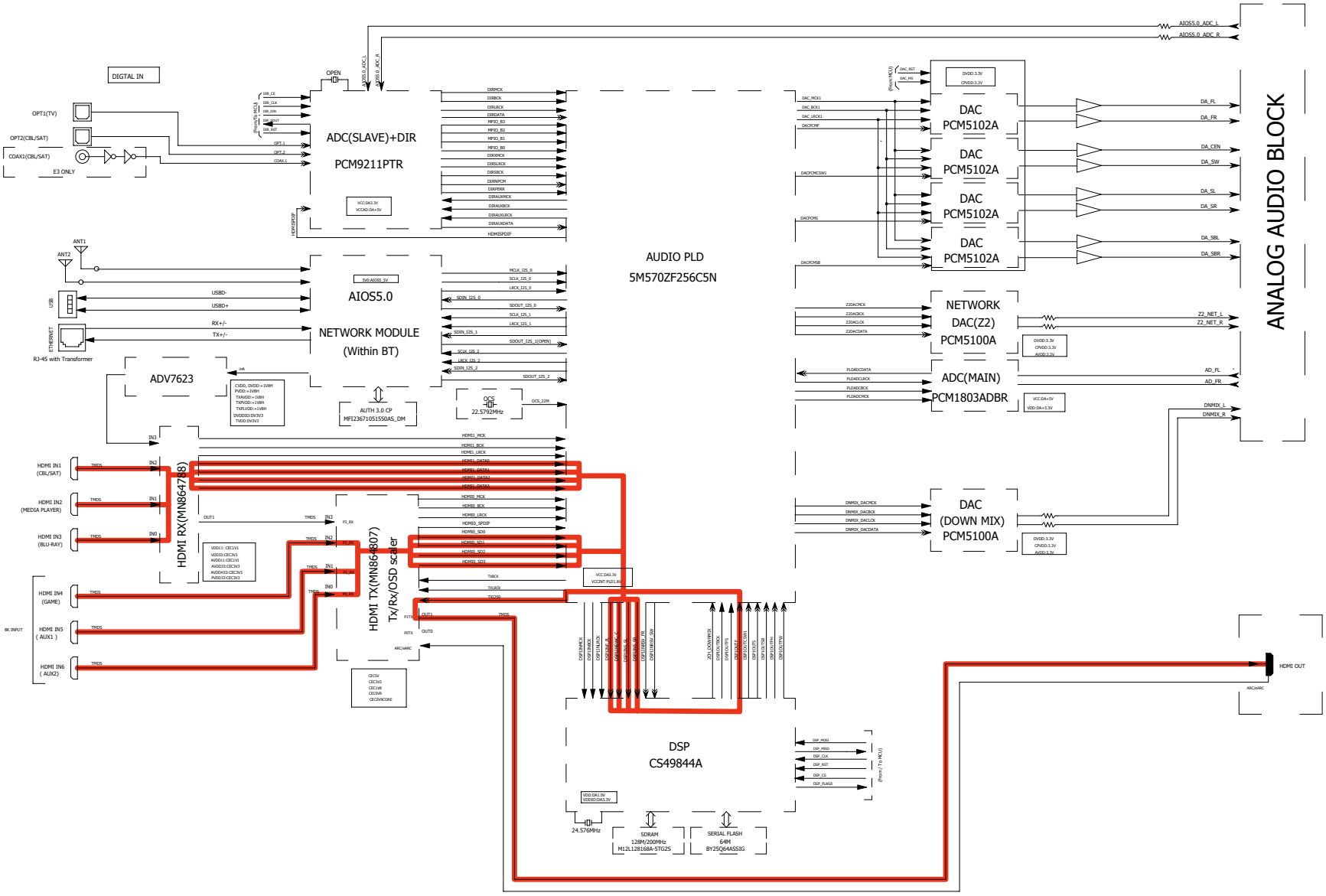
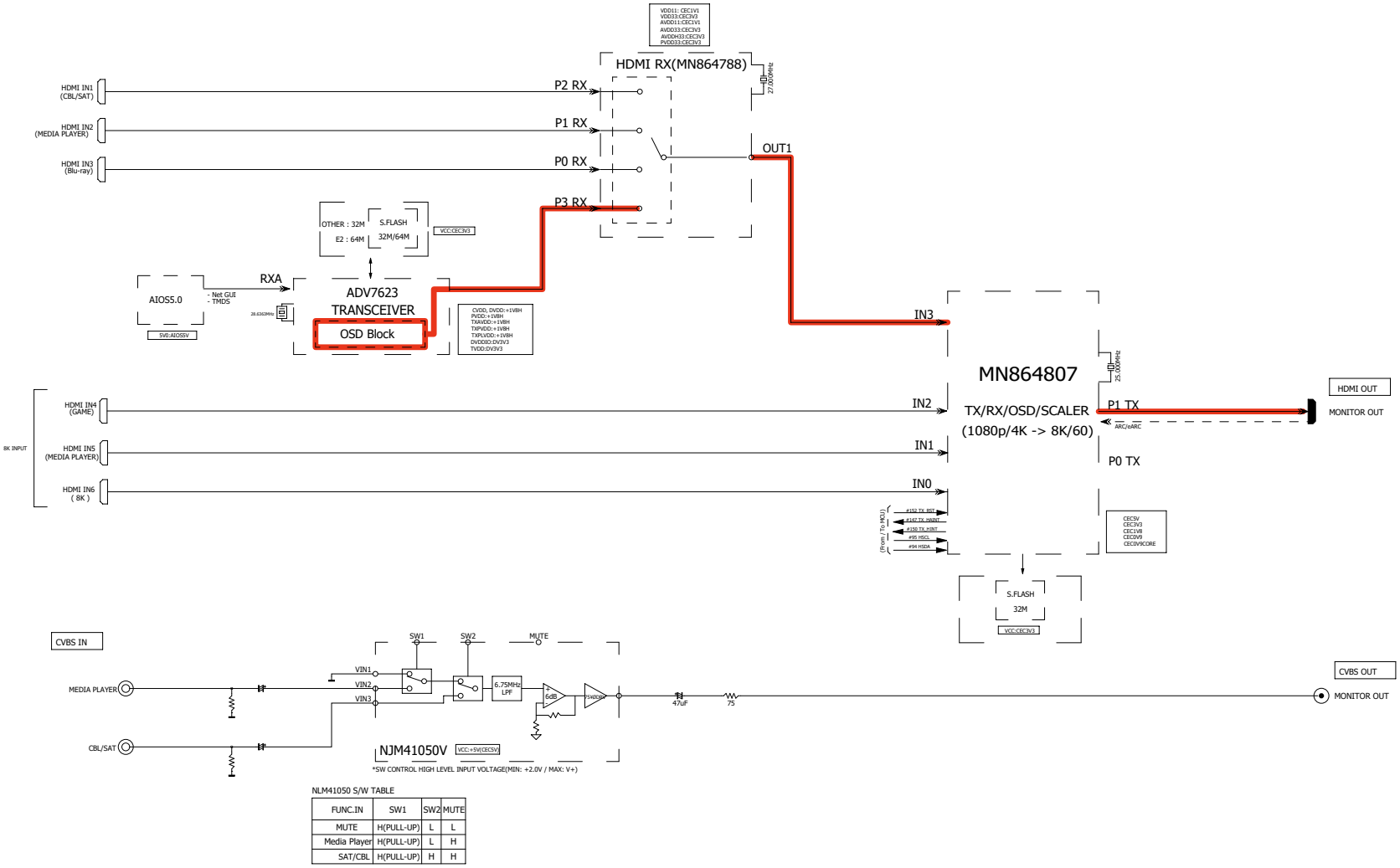


fig.V06

AVRS760H/X1700H VIDEO BLOCK



NLM41050 S/W TABLE

FUNC.IN	SW1	SW2	MUTE
MUTE	H(PULL-UP)	L	L
Media Player	H(PULL-UP)	L	H
SAT/CBL	H(PULL-UP)	H	H

JIG FOR SERVICING

Use the following jigs (extension cable kit) when repairing the PCBs.
Order with your dealer for the jigs your dealer if necessary.

CAUTION : Incorrect connections may cause malfunction.

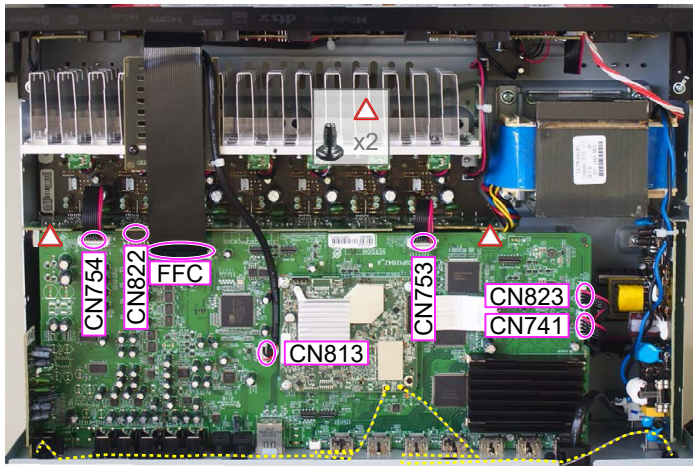
Connection of Jig for DIGITAL PCB
---Items to Be Prepared---

8U-1100845 : EXTENSION UNIT KIT	:	1 Set
Insulation sheet (Not supplied)	:	1 sheet
Ground lead (Not supplied)	:	2 pc

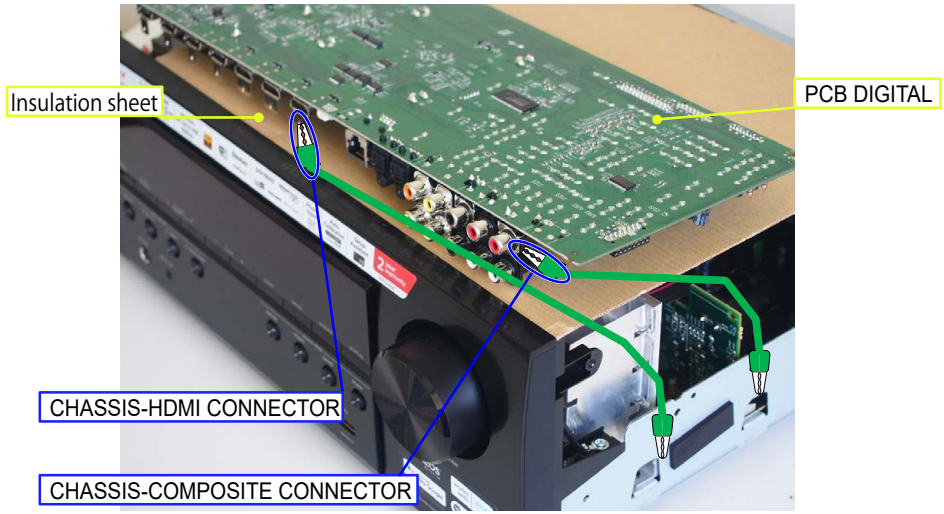
-Proceeding-

(1) Remove the screws.

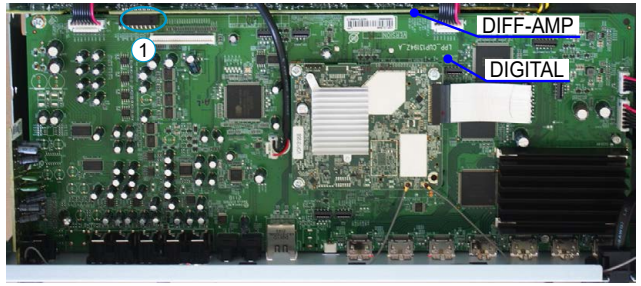
(2) Remove the connector PCB.



(3) Remove the DIGITAL PCB from the chassis and turn it over.
Place an insulation sheet larger than the PCB underneath the DIGITAL PCB.
※ Connect the earth of the PCB to the chassis using an earth wire, etc.



(4) Connect the expansion cables.



Board-to-Board Connections

No.	Pin	Ref. No.	PCB		Ref. No.	PCB
①	15pin	CN201	DIFF-AMP	⟷	CN822	DIGITAL

IDLING CURRENT CHECK for E3, E1C, S760 model

Checking Idling Current

1. Preparation

(1) Prepare a DC voltmeter.
(2) Place the unit under normal usage conditions, away from highly ventilated areas such as next to an air conditioning machine or electric fan.
The set requires an ambient temperature of 15℃ to 30℃ and standard humidity.
(3) Settings of This Unit
- POWER (Power source switch) STANDBY
- SPEAKER (Speaker terminal) No load

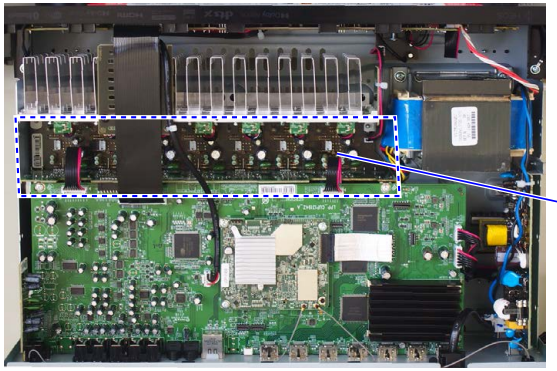
(Do not connect equipment such as speakers or dummy resistors.)

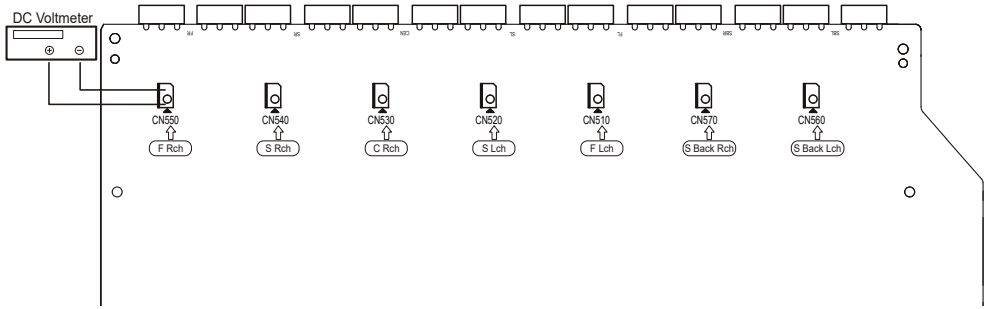
2. Confirmation Method

(1) Make sure that "**ECO Mode**" is off.
•Press the "**SETUP**" button on the remote control to display the GUI menu.
•Press the cursor button to select "**General**" → "**ECO**" → "**Mode**" → "**Off**".
(2) Connect the DC Voltmeter to the test points.

FRONT-Lch	: CN510
FRONT-Rch	: CN550
CENTER ch	: CN530
SURROUND-Lch	: CN520
SURROUND-Rch	: CN540
SURROUND-BACK Lch	: CN560
SURROUND-BACK Rch	: CN570

(3) Connect the power cord to an outlet. Next, press the power button to turn on the power.
(4) Set this unit as follows.
MASTER VOLUME : "---" (↺ min.) : turn counterclockwise to the lowest position.
SPEAKER (Speaker terminal) : No load
(Do not connect equipment such as speakers or dummy resistors.)
MODE : MCH STEREO
FUNCTION : TUNER
(5) Wait 10 minutes after turning on the power and check that the voltage becomes "**2.0mV ± 0.5mV DC**".
(6) Use the same method to check the voltage of each channel.





Adjusting Idling Current

NOTE : Adjusting the idling current when "**ECO Mode**" is set may damage the Power AMP.

1. Preparation

(1) Prepare a DC voltmeter.
(2) Place the unit under normal usage conditions, away from highly ventilated areas such as next to an air conditioning machine or electric fan.
The set requires an ambient temperature of 15℃ to 30℃ and standard humidity.
(3) Settings of This Unit
- POWER (Power source switch) STANDBY
- SPEAKER (Speaker terminal) No load

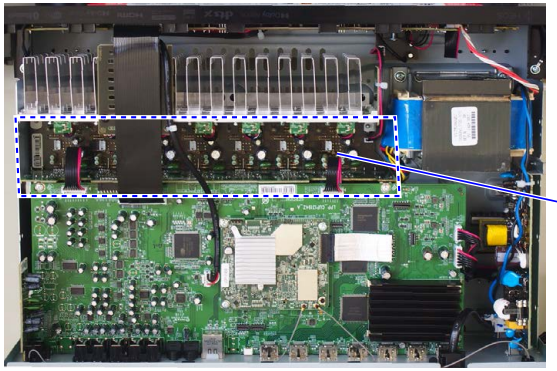
(Do not connect equipment such as speakers or dummy resistors.)

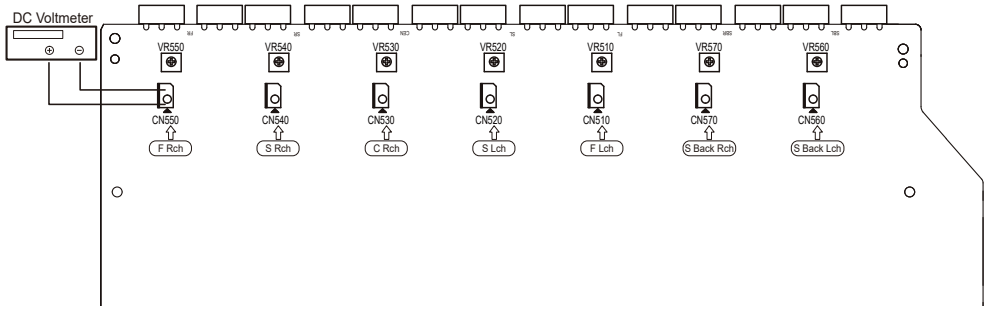
2. Adjustment Procedure

(1) Make sure that "**ECO Mode**" is off.
•Press the "**SETUP**" button on the remote control to display the GUI menu.
•Press the cursor button to select "**General**" → "**ECO**" → "**Mode**" → "**Off**".
(2) Remove the top cover and turn **VR510** (ALL Channel) of the MAIN PCB counterclockwise(↺) as far as possible.
(3) Connect the DC Voltmeter to the test points.

FRONT-Lch	: CN510	: VR510
FRONT-Rch	: CN550	: VR550
CENTER ch	: CN530	: VR530
SURROUND-Lch	: CN520	: VR520
SURROUND-Rch	: CN540	: VR540
SURROUND-BACK Lch	: CN560	: VR560
SURROUND-BACK Rch	: CN570	: VR570

(4) Connect the power cord to an outlet. Next, press the power button to turn on the power.
(5) Set this unit as follows.
MASTER VOLUME : "---" (↺ min.) : turn counterclockwise to the lowest position.
SPEAKER (Speaker terminal) : No load
(Do not connect equipment such as speakers or dummy resistors.)
MODE : MCH STEREO
FUNCTION : TUNER
(6) Turn **VR510** clockwise (↻) and adjust the voltage of the test point to "**4.0mV ± 0.5mV DC**" within 2 minutes.
(7) Check whether the voltage is within the range "**4.0mV ± 1mV DC**" 10 minutes after adjustment.
(8) Adjust the variable resistance of each channel using the same method.





UPDATING

PROCEDURE AFTER REPLACING THE PCB.

PROCEDURE AFTER REPLACING THE MCU, ETC.

FIRMWARE UPDATE PROCEDURE

1. Items necessary for update
2. Update preparation with a USB flash drive
3. Update method when the DIGITAL PCB or network module is replaced (Using a USB flash drive)
4. Update Method for Service Region Settings
5. Normal Firmware Update Method from USB Flash Drive
6. Normal Firmware Update Method from OTA
7. About the error codes

PROCEDURE AFTER REPLACING THE PCB.

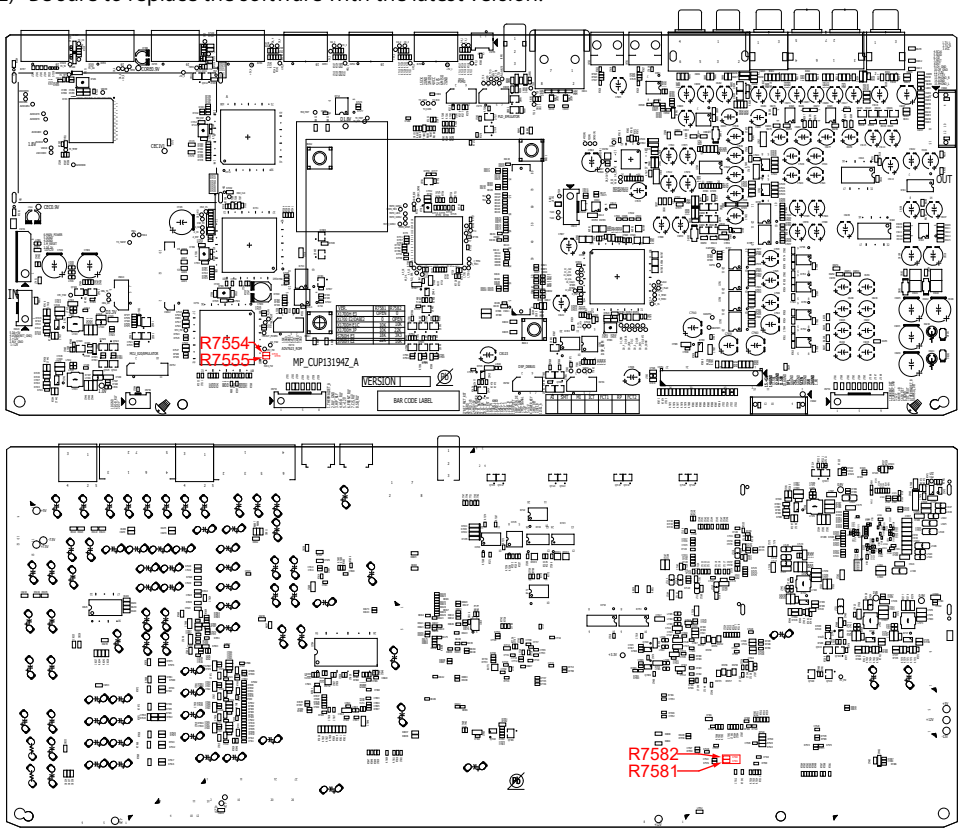
The procedure after replacing the printed circuit boards is as follows.

(1) Change the resistor for setting the region.

Model Area	DIGITAL PCB			
	R7581	R7582	R7554	R7555
AVR-X1700H (E3)	OPEN	0	OPEN	10K
AVR-X1700H (E2)	0	OPEN	OPEN	10K
AVR-X1700HDAB (E2)	0	OPEN	10K	OPEN
AVR-X1700H (E1C)	10K	10K	OPEN	10K
AVR-X1700H (JP)	10K	22K	OPEN	10K
AVR-S760H (E3)	18K	3.3K	OPEN	10K
AVR-S760H (E2)	22K	10K	OPEN	10K

See the PCB below.

(2) Be sure to replace the software with the latest version.



PROCEDURE AFTER REPLACING THE MCU, ETC.

The procedure after replacing the MCU (microprocessor), flash ROM, etc. is as follows.
Implement the update method when the DIGITAL PCB or network module is replaced.

PCB Name	Ref. No.	Description	Procedure after Re-placement	Remark
DIGITAL	IC751	R5F564MGCDFB	B	SOFTWARE : Main
DIGITAL	IC782	BY25Q64ASSIG	B	SOFTWARE : DSP ROM
DIGITAL	IC732	BY25Q32BSSIG BY25Q64ASSIG (E2 only)	B	SOFTWARE : GUI ROM
DIGITAL	IC723	BY25Q32BSSIG	B	SOFTWARE : 4k GUI
DIGITAL	IC771	5M570ZF256C5N	C	SOFTWARE : AUDIO PLD
MODULE	C8	NETWORK MODULE	D	SOFTWARE : Network

Procedure after Replacement

A : The software has been written. The software is not written at the time of replacement.

B : The software has been written. The software may need to be rewritten by version updates. Check the version.

C : The software has not been written. The software needs to be written after replacement.
See "FIRMWARE UPDATE PROCEDURE" for information on writing the software.

D : The software has been written. Be sure to rewrite with the latest software for your service region.
See "3. Update method when the DIGITAL PCB or network module is replaced (Using a USB flash drive)" for information on rewriting the software.

FIRMWARE UPDATE PROCEDURE

1. Items necessary for update

Items necessary for update are as follows.

Update Type	Needed Part for Update	Requirement	Offered / not Offered		
			Standard Service Equipment Not offered by D&M	Purchase from D&M Article code	Download from SDI
Via USB	USB flash drive (USB 2.0 : Min 1GB) • We recommend a USB memory device that has an LED installed.	Formatting FAT16 or FAT 32	X	-	"Table 1" or "Table 2"
Via OTA	Internet Connection by Broadband Circuit	-	X	-	-
	Modem	-	X	-	-
	Router	-	X	-	-
	Ethernet cable (CAT-5 or greater is recommended)	-	X	-	-

Table 1

Update download file when the DIGITAL PCB or network module is replaced

Model Name	Model Area	Download from SDI
AVR-X1700H AVR-S760H	ALL	avr_50.prod.update.factory.xxxx.zip

Table 2

Update download file when the firmware is updated (Two files, "HW component" and "Network module")

Model Name	Model Area	Download from SDI		
		For HW component		For Network module
AVR-X1700HE3	North America (E3)	Product ID : 000101280100	DPMS_AVR-X1700HE3_LEGO_xxxx.zip	heos_50.prod_x.xxx.xx.zip
AVR-X1700HE2 AVR-X1700HDABE2	Europe (E2)	Product ID : 000101280200 Product ID : 000101280800	DPMS_AVR-X1700HE2_LEGO_xxxx.zip DPMS_AVR-X1700HDABE2_LEGO_xxxx.zip	
AVR-X1700HJP	Japan (JP)	Product ID : 000101280400	DPMS_AVR-X1700HJP_LEGO_xxxx.zip	
AVR-X1700HE1C	China (E1C)	Product ID : 000101280500	DPMS_AVR-X1700HE1C_LEGO_xxxx.zip	
AVR-S760HE3	North America (E3)	Product ID : 000101280700	DPMS_AVR-S760HE3_LEGO_xxxx.zip	
AVR-S760HE2	Europe (E2)	Product ID : 000101280900	DPMS_AVR-S760HE2_LEGO_xxxx.zip	

2. Update preparation with a USB flash drive

You can update the firmware by downloading the latest version with USB flash drive.

2.1. Connecting to the USB flash drive

(1) Preparation

- Windows PC
- USB flash drive format : Prepare a USB flash drive formatted in FAT16 or FAT32.
  ※We recommend a USB flash drive that has an LED installed.

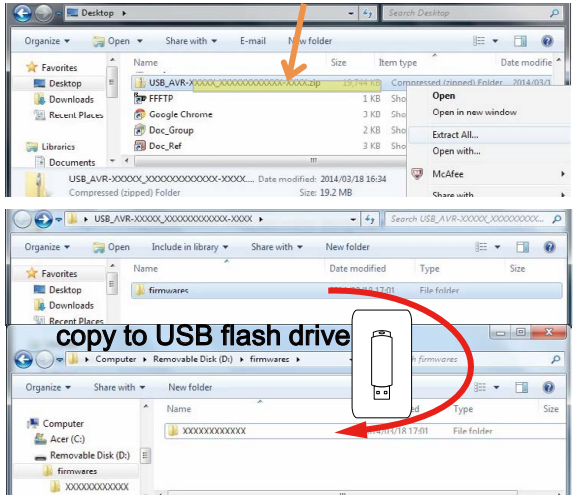
NOTE :

- Use a memory that supports USB2.0.
- Do not run the USB flash drive through a hub.
- Do not connect a computer to the USB port of this unit using a USB cable.
- Do not use an extension cable when connecting the USB flash drive.
- Save the update file on a blank USB flash drive for use.
- If a USB flash drive cannot be updated, replace it with a different USB flash drive and perform the update again.

2.2. Unzipping the Downloaded File

Unzip the downloaded file on your computer.

XXXXXXXXXXX	xxxxxxxxxx_xxxxxxxx.zip



There are folders or files after unzipping.
Copy these folders or files onto the USB flash drive.
The folders or files must be placed in the root directory of the USB flash drive.

3. Update method when the DIGITAL PCB or network module is replaced (Using a USB flash drive)

3.1. File structure on USB flash drive

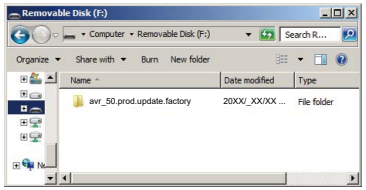
DIGITAL PCB or network module is replaced onto the USB flash drive in the following structure.

After unzipping the files, store them in the root of the same USB flash drive.

Model Area	Download from SDI
ALL	avr_50.prod.update.factory.xxxx.zip

USB flash drive root
+ avr_50.prod.update.factory
  + xxxxxxzz.ota-download
  + heos_50.prod.update.factory

xxxxxx : Model name
zz : Region

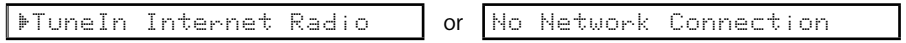


3.2. Start the update.

NOTE :
- Remove the LAN cable from this unit when updating.
  (Do not connect to a wired or wireless network.)
- The GUI menu setting details and image quality adjustment setting details are initialized when Firmware Factory Restore is performed. Therefore, take a note of the setting details beforehand and reconfigure the settings after update.
- Do not remove the USB flash drive until updating is completed.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

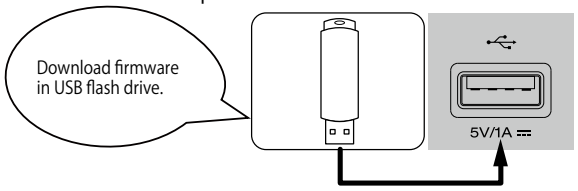
Once an update is started, normal operations cannot be performed until it is completed.

(1) Press the power button to turn on the power.
(2) Wait for this unit to start up.
(3) Set the input source to HEOS Music.
Check that the display is as shown below.



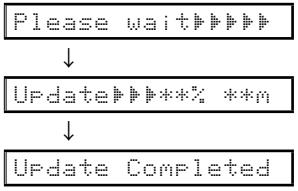
Content of the display is scrolled.

(4) Insert the USB flash drive into the USB port.



(5) USB Update starts automatically.
The Standby LED lights red.

Display during USB update



It takes a maximum of approximately 25 minutes for update to complete.

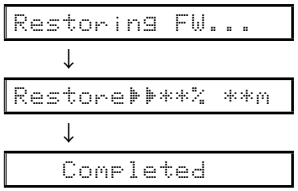
(6) The unit restarts when update is complete.
※When update is complete, the folder name on the USB flash drive changes to "**avr_50.prod.update.factory.done**". To use the files again, delete the "**.done**" part.

(7) Execute Firmware Factory Restore.

AVR-X1700H
- While holding down buttons "**TUNER PRESET CH -**" and "**DIMMER**" simultaneously, press the power button to turn on the power.

AVR-S760H
- While holding down buttons "**BAND**" and "**MODE**" simultaneously, press the power button to turn on the power.

Display during Firmware Factory Restore



It takes approximately 15 minutes for Firmware Factory Restore to complete.

(8) Execute Service Region Settings.
See "4. Update Method for Service Region Settings"

(9) Check that the version is the specified version. See "1. Version Display Mode"

(10) If necessary, use OTA or the USB flash drive to update the firmware to the newest version.
※We recommend using the firmware update method using OTA.
See "5. Normal Firmware Update Method from USB Flash Drive" or "6. Normal Firmware Update Method from OTA"

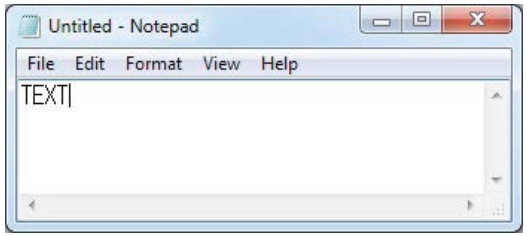
4. Update Method for Service Region Settings

Copy the Service Region Settings from the USB flash drive to this unit.

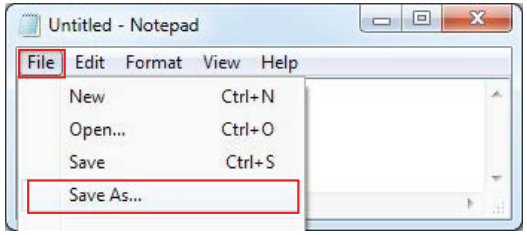
4.1. Creating a Service Region Settings file

(1) Click [Start button] - [Accessories] - [notepad] on the PC to launch the notepad.

(2) Enter "**TEXT**".

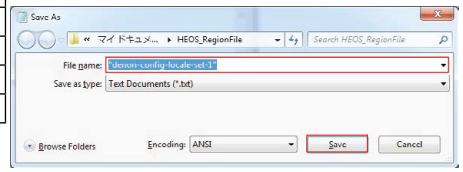


(3) Click "**File**", and then click "**Save As...**".

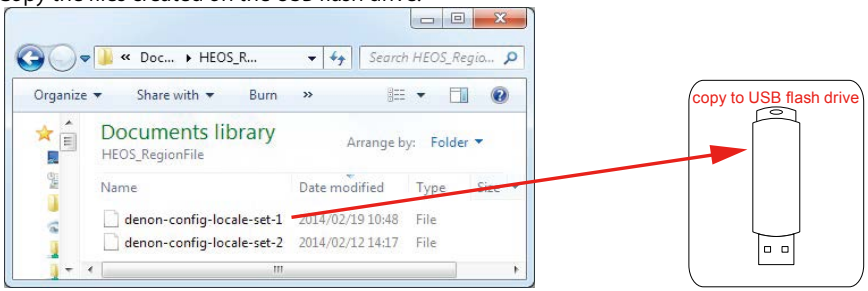


(4) Enter the file name and click the Save button.
NOTE : Enter the file name in double quotation marks. (The file extension is not required.)

Service Region	File name
North America	"denon-config-locale-set-1"
Europe	"denon-config-locale-set-2"
Japan	"denon-config-locale-set-3"
Australia	"denon-config-locale-set-4"
Korea	"denon-config-locale-set-5"
China	"denon-config-locale-set-6"
Israel	"denon-config-locale-set-7"



(5) Copy the files created on the USB flash drive.

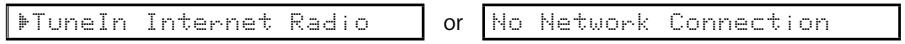


4.2. Starting Service Region Settings

NOTE :

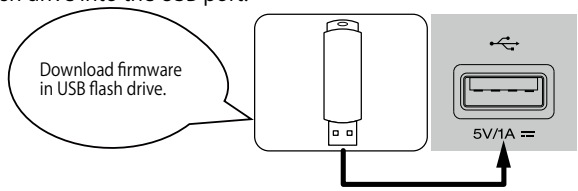
- Remove the LAN cable from this unit when updating.
  (Do not connect to a wired or wireless network.)
- We recommend a USB memory device that has an LED installed.

(1) Press the power button to turn on the power.
(2) Wait for this unit to start up.
(3) Set the input source to HEOS Music.
Check that the display is as shown below.



Content of the display is scrolled.

(4) Insert the USB flash drive into the USB port.



(5) Wait for at least 10 seconds before removing the USB flash drive.
(If the USB flash drive has an LED, this LED will be flashing. Remove the USB flash drive when the LED stops flashing.)

5. Normal Firmware Update Method from USB Flash Drive

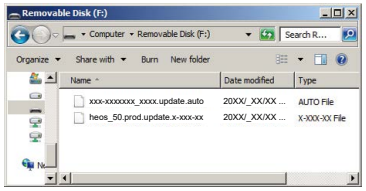
5.1. File structure on USB flash drive

Copy the normal update files onto the USB flash drive in the following structure.

After unzipping the HW component USB update files for the target model and Network module USB update files, store them in the root of the same USB flash drive.

Model Area	Download from SDI	
	For HW component	For Network module
North America (E3)	DPMS_AVR-X1700HE3_LEGO_xxxx.zip Product ID : 000101280100	heos_50.prod_x.xxx.xx.zip
Europe (E2)	DPMS_AVR-X1700HE2_LEGO_xxxx.zip Product ID : 000101280200	
Europe (E2)	DPMS_AVC-X1700HDABE2_LEGO_xxxx.zip Product ID : 000101280800	
Japan (JP)	DPMS_AVR-X1700HJP_LEGO_xxxx.zip Product ID : 000101280400	
China (E1C)	DPMS_AVR-X1700HE1C_LEGO_xxxx.zip Product ID : 000101280500	
North America (E3)	DPMS_AVR-S760HE3_LEGO_xxxx.zip Product ID : 000101280700	
Europe (E2)	DPMS_AVR-S760HE2_LEGO_xxxx.zip Product ID : 000101280900	

USB flash drive root
+ AVR-xxxxHxx_xxxx.update.auto
+ heos_50.prod.update.x-xxx-xx



5.2. Start normal update

NOTE :
- Remove the LAN cable from this unit when updating.
  (Do not connect to a wired or wireless network.)
- Do not remove the USB flash drive until updating is completed.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

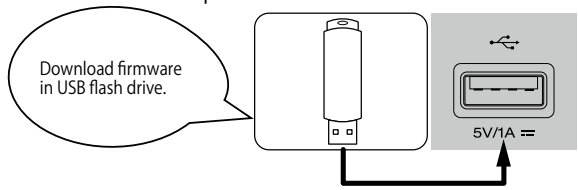
Once an update is started, normal operations cannot be performed until it is completed.
The GUI menu settings and image adjustment settings of this unit may be initialized.
Note down the settings before updating, and set them again after updating.

(1) Press the power button to turn on the power.
(2) Wait for this unit to start up.
(3) Set the input source to HEOS Music.
Check that the display is as shown below.

▶TuneIn Internet Radio	or	No Network Connection

Content of the display is scrolled.

(4) Insert the USB flash drive into the USB port.



(5) USB Update starts automatically.
The Standby LED lights red.

Display during USB update

Please wait▶▶▶▶▶
↓
Update▶▶▶**% **m
↓
Update Completed

It takes a maximum of approximately 25 minutes for update to complete.

(6) The unit restarts when update is complete.

(7) After updating the firmware, check the version.
See "1. Version Display Mode"

6. Normal Firmware Update Method from OTA

Download the latest firmware from our website and update the firmware.

---Cautions on Firmware Update---

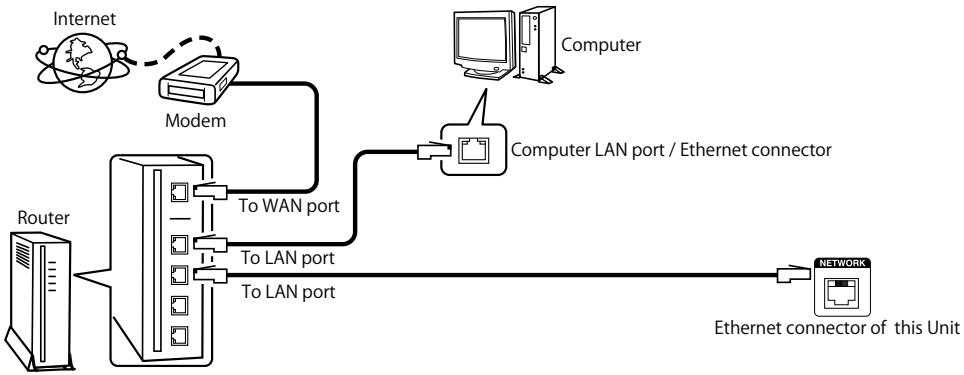
- For the update procedure, a proper broadband Internet connection environment and settings are required.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

Once an update is started, normal operations cannot be performed until it is completed.
The GUI menu settings and image adjustment settings of this unit may be initialized.
Note down the settings before updating, and set them again after updating.

6.1. Network Connection

(1) System Requirements
- Internet Connection by Broadband Circuit
- Modem
- Router
- Ethernet cable (CAT-5 or greater is recommended)

(2) Setting



6.2. Check and update the firmware

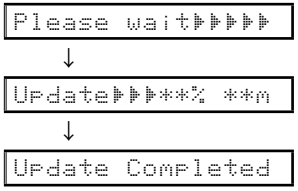
Check if there is a firmware update available. It is also possible to check approximately how long the update will take.

(1) Press the "**SETUP**" button on the remote control to display the GUI menu.

(2) Press the cursor button to select "**General**" → "**Firmware**" → "**Check for Update**".

(3) Check update
- If the firmware version is anything other than the latest version, select "**Update Now**" to update the firmware.
- "**No update required. Latest version installed.**" is displayed when the firmware version is up to date.

(4) OTA Update starts automatically.
The Standby LED lights red.
Display during OTA update



It takes a maximum of approximately 25 minutes for update to complete.

(5) The unit restarts when update is complete.

(6) After updating the firmware, check the version.
See "1. Version Display Mode"

7. About the error codes

See the table below for details on error codes and solutions when updating the firmware.
Error codes are displayed in 4 digits, YYXX(YY : DeviceID, XX : ErrorCode).

Display

Update▶▶▶**% **m

↓

Update ErrorYYXX Update ErrorYYXX (YY : DeviceID, XX : ErrorCode)

↓ ↑ The display is alternately displayed.

Please check you

Content of the display is scrolled.

Remedies

Error Code (YYXX) (DeviceID/ErrorCode)	Remedies
000A	"Connection failed. Please check your network, then try again."
0009	"Update failed. Please check your network, then try again."
0009	"Upgrade failed. Please check your network, then try again."
YY00 YY01 YY02 YY03 YY04 YY07	"Please check your network, unplug and reconnect the power cord, and try again."
YY00 YY01 YY02 YY03 YY04 YY07	"Please unplug and reconnect the power cord, and try again."
0005	"Incompatible update file found on the USB device. Please check the file."
0006	"Update file is corrupted. Please check the file."
000B	"Please contact customer service in your area." ※ Check the power supply and communication lines of each device.

Device ID table

Device ID (YY)	Device Name
00	General
01	Main CPU
0B	Main FBL (No used)
11	DSP
15	Audio PLD
2A	GUI
2B	PIMG
33	Network module

Error Code table

Type code (XX)	Description
00	Logical error
01	Error during erasing
02	Error during writing
03	Error during verifying
04	No access for the component
05	Package mismatched. Product ID, package version un-matched of the package manifest
06	Unpack dis-available of component package file
07	Time out
08	Latest firmware has already installed.
09	Error during download
0A	Error connection
0B	Hardware Error

---Checking the Firmware Version After the Update---

After updating the firmware, check the version.
See "1. Version Display Mode"

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